

QS460 User Manual

USER MANUAL

GATEWAYS FOR TRANSFERRING DATA
BETWEEN DEVICENET AND MODBUS RTU





460 User Manual

Gateways for transferring data between
different protocols:

BACnet/IP
DeviceNet
EtherNet/IP
Modbus RTU
Modbus TCP
Serial

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Revision history

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Chapter 1 Introduction

The 460 Gateway lets you control how to manipulate and control data, moving it bi-directionally across devices with different protocols. Trusted legacy devices can now be connected to a variety of networks using 460 Gateways. For example, PLCs (including the Twido™ PLC from Schneider Electric), building managements systems, and energy management devices can communicate with scales, drives, barcode readers, and sensors of every type. See Figure 1-1 below.

The 460 Gateways are easy to configure using an embedded web page from which you enter the appropriate network addresses and then define the groups of registers to send/receive data and the order in which the data is received.

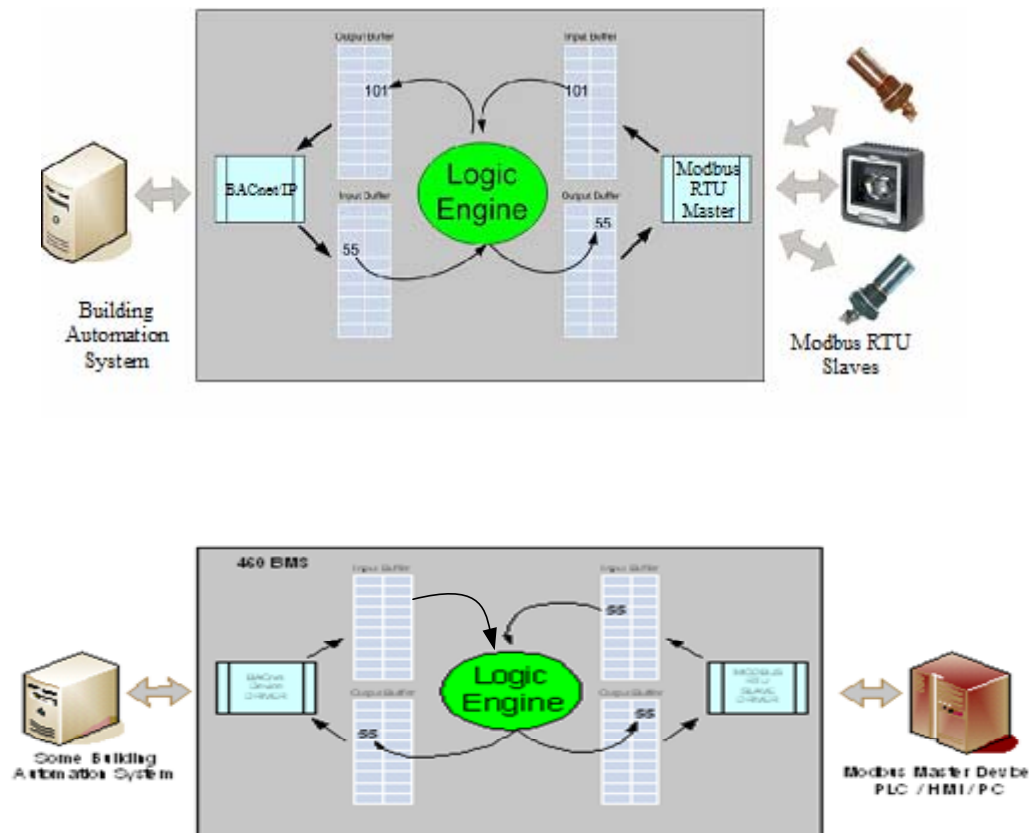


Figure 1-1 460 Gateway configuration options

Figure

Specifications

Table 1-1 shows the specifications for the 460 Gateway.

Table 1-1 460 Gateway specifications

Item	Description
Hardware description	Dimensions: 11 x 8.3 x 2.54 centimeters (4.2 x 3.25 x 1 inches) Weight: 5 ounces Enclosure material: anodized AL Mounting: DIN rail Power connector: 2 pin barrel
Power requirements	12VDC at 500ma
Temperature range	0° to 70° Celsius (32° to 158° Fahrenheit)
Ports Refer to your 460 Quick Start Guide for correct port configuration. (Available ones depend on the 460 configuration you purchased.)	RJ45 10/100 Base-T (Ethernet) For gateways with two DB-9 connectors • RS232 on ports 0 and 1 • RS485 on port 0 For gateways with one DB-9 connector and one T-Strip5 connector • DB-9 can be RS232, RS485, or CAN/DeviceNet • T-Strip5 can be RS-232, RS485, or CAN/DeviceNet *Both ports can NOT be configured to use the same transceiver (RS-232, RS-485, or CAN).
LEDs	Connection (link speed) and power Some models have an additional two LEDs on the long side of the Gateway unit that are for future use.
Supported baud rates	300 to 115.2K
Internal logic specification	IEC 61131 (CoDeSys™)
Logic types supported	Ladder Logic, Instruction List, Function Block Programming, Structured Text, and Sequential Function Chart

Supported protocols

The 460 Gateways connect devices with the following protocols:

- ASCII RS232
- ASCII RS485
- BACnet/IP® Server
- CANopen Slave
- DeviceNet™ Master
- DeviceNet Slave
- EtherNet/IP™ Client
- EtherNet/IP Server
- Modbus® RTU Master
- Modbus RTU Slave
- Modbus TCP Client
- Modbus TCP Server
- Raw TCP Client
- Raw TCP Server

If you would like more information about 460 Gateway configurations, contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com.

The 460 Gateway parts

The 460 Gateway contains the following parts.

- The 460 Gateway unit
- Power cable
- DIN rail mounting
- Crossover cable to connect a personal computer to the Gateway unit during the initial setup (or to change settings)
- Null modem cable (two female connectors) to use during debugging, if necessary
- A CD with the user manuals and utilities

Additional required equipment

You need to connect a personal computer to the 460 Gateway just during the initial software setup or if you need to change settings because of a device change.

You must supply the cables to use for communications after the setup is complete.

Chapter 2 Installing the 460 Gateway

Before the 460 Gateway can transfer data, you need to do the following tasks:

- Optionally set jumper switches for RS232, RS485, or CAN operations on the ports (460 EDX only)
- Connect a personal computer, temporarily, to the 460 Gateway in order to complete the software setup
- Make software selections for the Gateway
 - After the computer is connected, configure the Communication Modules, starting on page 8.
 - When all the necessary Communication Modules are configured, continue with *Editing the 460 Gateway Network Settings* on page 50.
 - When you have finished setting up or making any desired changes to the 460 Gateway's configuration, continue with *Making Settings Take Effect* on page 52.
- Install the Gateway hardware

In addition to these tasks, you may need to make some additional changes on the devices to which you are connecting the 460 Gateway. For example, if you are connecting to a PLC, you should define tags for sending and receiving data and define ladder logic to clear the data after the PLC receives data via the 460 Gateway. Other devices may require similar tasks.

Setting jumpers

➡ **Note:** Skip this section unless you have a 460 EDX Gateway and want Port 0 or Port 1 to change from the current settings. The factory default port settings on the 460 EDX Gateway are for Port 0 to be set for RS485 and Port 1 to be set for RS232.

Most 460 Gateways are shipped with port settings already configured. In these cases, please skip this section and continue on with the following section, *Connecting a computer for software setup* on page 5. However, if you have a 460 EDX Gateway, you may want to change these port settings. **Other 460 Gateways cannot be modified to change the port settings.** The default port settings on the 460 EDX Gateway are for Port 0 to be set for RS485 and Port 1 to be set for RS232. However, you can modify a port to use CAN (or return a port setting to RS 232 or RS485) by changing the jumpers on the Gateway unit. If you are satisfied with the port settings, skip this section and continue with the following section. Both ports cannot be set for the same type of communications.

➡ **Note:** Only one RS232, RS485, or CAN port setting can be active per unit. For example, a unit cannot have two ports set for RS232 or two ports set for CAN.

To change port settings on the 460 EDX Gateway, use the following steps.

1. No cables should be connected to the Gateway unit. If this unit has been in use and you are making a change, disconnect the power cable and any communications cables from the Gateway unit.
2. Remove the two small Phillips-head screws from each long side (no connectors) of the Gateway unit.
3. Remove the green T-Strip5 connector. Slide the cover off towards the ports. The jumpers are just behind the ports.
4. Move the jumper shunts to reflect the desired settings. See Figure 2-1.

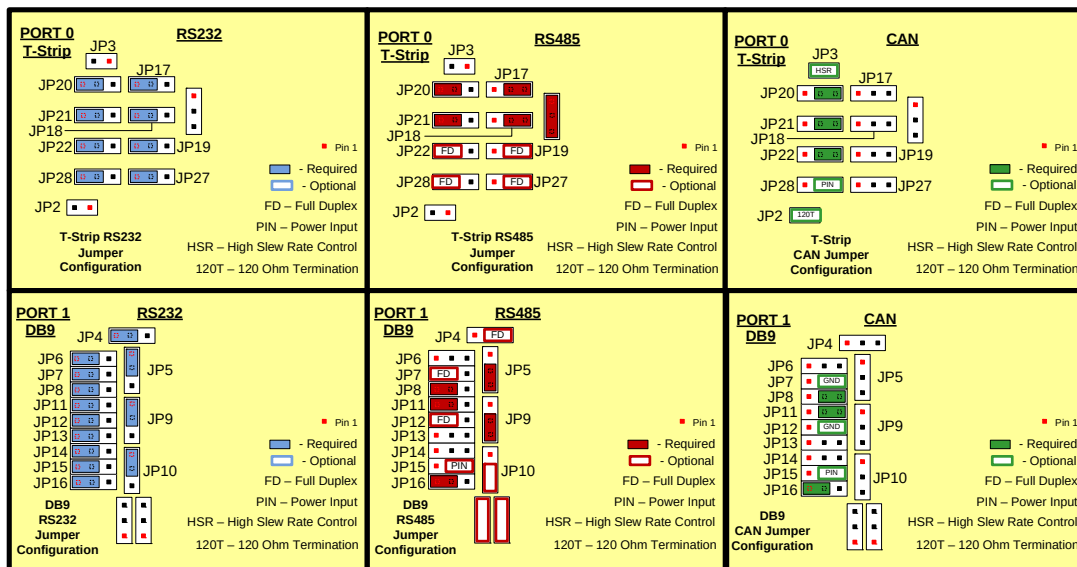


Figure 2-1 Jumper settings

5. Replace the Gateway unit's cover. Replace the four screws. Replace the green T-Strip5 connector.

Connecting a computer for software setup

Before performing the initial software setup, you must connect a computer with a web browser to the 460 Gateway. Use the following steps to connect the computer and to access the embedded web site where you make your software selections.

1. Connect one end of the Ethernet crossover cable to the 460 Gateway and the other end to the RJ45 connector on your computer.

Default IP Address – 192.168.0.100

2. Insert the power connector to the 460 gateway unit, and then plug the power cord into a power source.
3. Launch the web browser. In the address window, enter <http://192.168.0.100>
Press Enter

The RTA 460 Gateway Main Page displays. See Figure 2-2.

For illustration purposes, this manual refers to example screens from the 460EDX Gateway. Other 460 Gateway versions have similar screens.

➡ **Note:** If the web page does not display, check the following settings:

The web page does not display when the computer is on a wireless network because of subnet selections. Use either the crossover cable or a hub/switch on the same subnet.

Verify that your web browser is not set for a proxy server. If you are using Internet Explorer, check Internet Options/Connections/LAN Settings. Make sure the check box is checked for Automatically detect settings and the check box is empty (not checked) next to the Use a proxy server for your LAN option.



Figure 2-2 460 Gateway Main Page

➔ **Note:** If this is not the first time that this 460 Gateway has been configured, Figure 2-2 displays different modules.

4. Click on **Edit** next to the **Description module** on the RTA Gateway Main Page. See Figure 2-2.

The **RTA 460 Edit Description** screen displays. See Figure 2-3.

5. Enter a description of up to 80 characters for this particular 460 Gateway. In this example, the 460 Gateway is a test site for a water flow meter.
6. Click **Save**.

The 460 Gateway Main Page displays with the edited description.

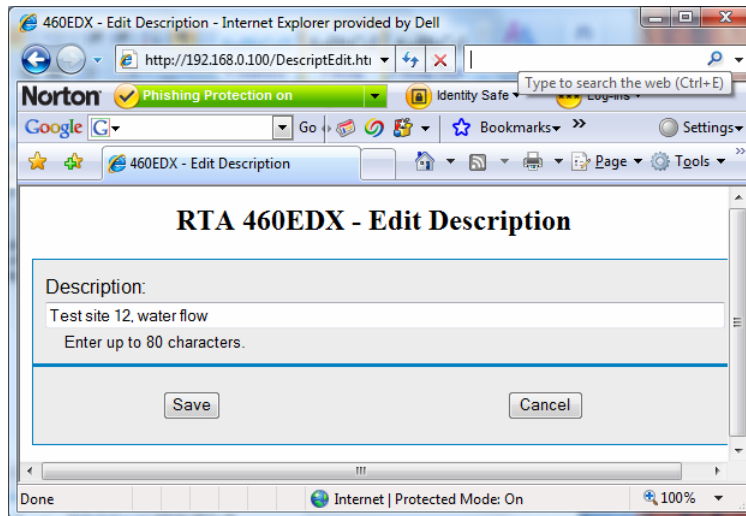


Figure 2-3 RTA 460 Edit Description

Configuring the 460 Gateway

The 460 Gateway always acts as at least two devices at a time (for example, a Modbus RTU Master and a serial device). Therefore, you must always configure at least two Communication Modules. After the computer is connected to the 460 Gateway, refer to the following applicable sections to configure your particular 460 Gateway.

- Modbus[®] RTU Master configuration on page 8.
- Modbus RTU Slave configuration on page 13.
- Modbus TCP Client configuration on page 17.
- Modbus TCP Server configuration on page 21.
- EtherNet/IP[™] Client configuration on page 24.
- EtherNet/IP Server configuration on page 27.
- DeviceNet[™] Master configuration on page 30.
- DeviceNet Slave configuration on page 34.
- BACnet/IP[®] Client configuration on page 38.
- BACnet/IP Server configuration on page 41.
- Serial Devices configuration on page 45.

When all the necessary Communication Modules are configured, continue with *Editing 460 Gateway Network Settings* on page 50.

When you have finished setting up or making any desired changes to the 460 Gateway's configuration, continue with *Making Settings Take Effect* on page 52.

For illustration purposes, this manual refers to example screens from the 460EDX Gateway. Other 460 Gateway versions have similar screens.

Modbus RTU Master configuration

If your version of the 460 Gateway requires your gateway to act as a Modbus RTU Master, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on  next to the **Selected Communication Modules** on the RTA Gateway Main Page. See Figure 2-2.
The **Communication Module Configuration** screen displays. See Figure 2-4.

➡ **Note:** The Edit buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

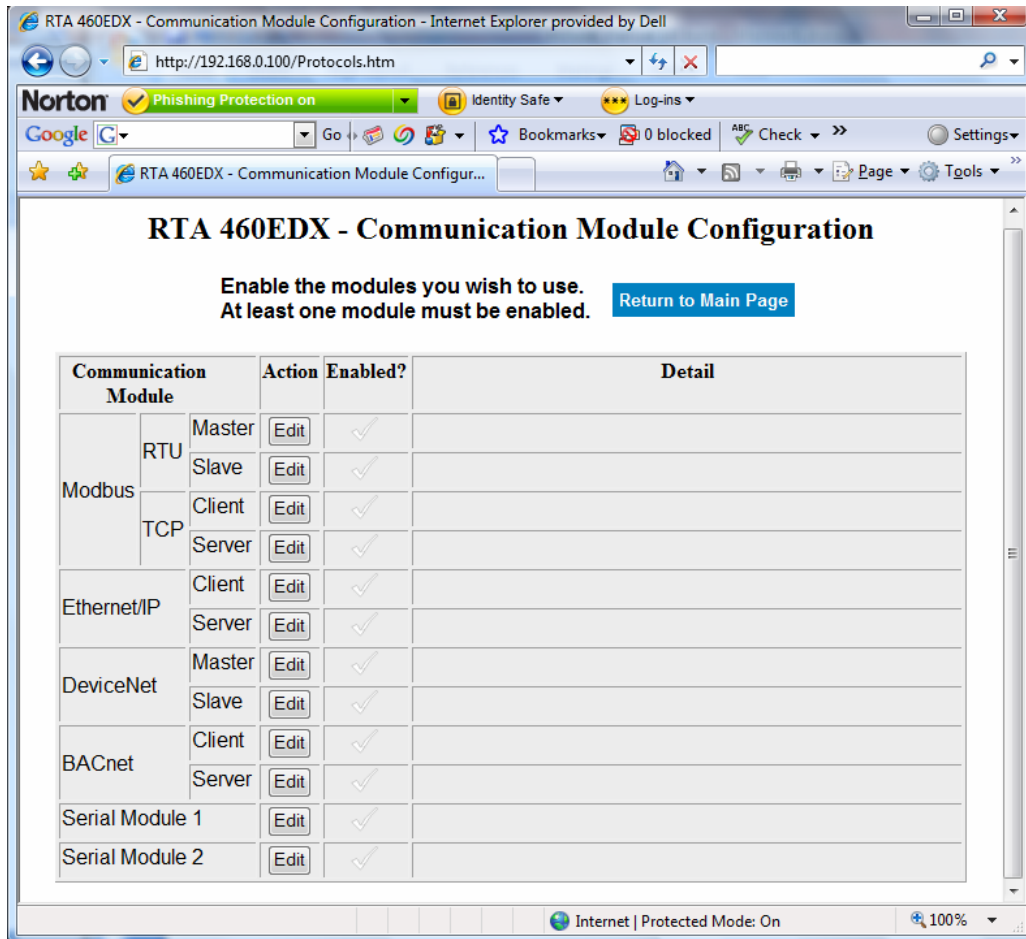


Figure 2-4 Communication Module Configuration screen

2. Click on **Edit** next to next to **Modbus RTU Master**. The **Enabled?** prompt displays. See Figure 2-5.

Default IP Address – 192.168.0.100

The screenshot shows the 'RTA 460EDX - Communication Module Configuration' window. At the top, it says 'Enable the modules you wish to use. At least one module must be enabled.' with a 'Return to Main Page' button. Below is a table with columns: 'Communication Module', 'Action', 'Enabled?', and 'Detail'. The 'Modbus' module is selected, and the 'Master' mode is active. The 'Enabled?' checkbox is checked. The 'Detail' column shows '<-- Module is currently not enabled'. There are 'Save' and 'Cancel' buttons at the bottom right.

Communication Module	Action	Enabled?	Detail
Modbus	Master	☒	<-- Module is currently not enabled
	Slave	☐	
	Client	☐	

Figure 2-5 Enable Modbus RTU Master configuration

- Click on the **Enabled?** checkbox.
The Module's Detail options expand when enabled. See Figure 2-6.

The screenshot shows the 'RTA 460EDX - Communication Module Configuration' window with the 'Modbus' module selected and the 'Master' mode active. The 'Enabled?' checkbox is checked. The 'Detail' column shows the following settings: 'Connector: Port 1: DB9', 'Mode: RS-485 Half (2 wire)', 'Baud: 19200', 'Parity: RS-232', 'Data: 8 Bits', and 'Stop: RS-485 Full (4 wire)'. There are 'Save' and 'Cancel' buttons at the bottom right.

Communication Module	Action	Enabled?	Detail
Modbus	Master	☒	Connector: Port 1: DB9 Mode: RS-485 Half (2 wire) Baud: 19200 Parity: RS-232 Data: 8 Bits Stop: RS-485 Full (4 wire)
	Slave	☐	
	Client	☐	

Figure 2-6 Modbus RTU Master configuration details

- Select the appropriate communication options from the drop-down menus.

➡ **Note:** Only one RS232, RS485, or CAN port setting can be active per unit. For example, a unit cannot have two ports set for RS232 or two ports set for CAN. If the same mode is selected for two communication modules, a message similar to Figure 2-7 displays.

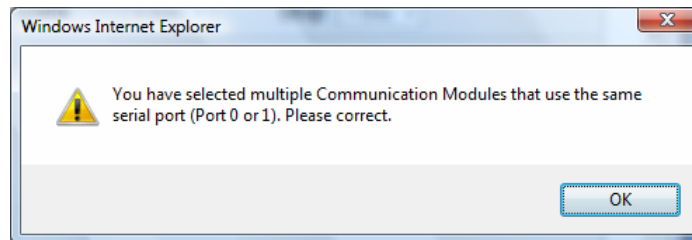


Figure 2-7 Serial port incompatibility error

- Click on **Save**.
The selections stay visible on the **Communication Module Configuration** screen, although they are grayed out (until you select **Edit** again). See Figure 2-8.

Default IP Address – 192.168.0.100

Communication Module	Action	Enabled?	Detail
Modbus	Master	☒	Connector: Port 1: DB9 Mode: RS-485 Half (2 wire) Baud: 19200 Parity: None Data: 8 Bits Stop: 1 Bits
	Slave	☐	
	Client	☒	
TCP			

Figure 2-8 Modbus RTU Master configuration details selected



For Your Information: Familiar users can make all desired communication module edits before completing the external device list for the master/client devices. The order of the configuration steps do not matter as long as the communication module is enabled.

- Click on the **Return to Main** button. The RTA 460 Gateway Main Page displays with a Client Module Configuration option. See Figure 2-9.

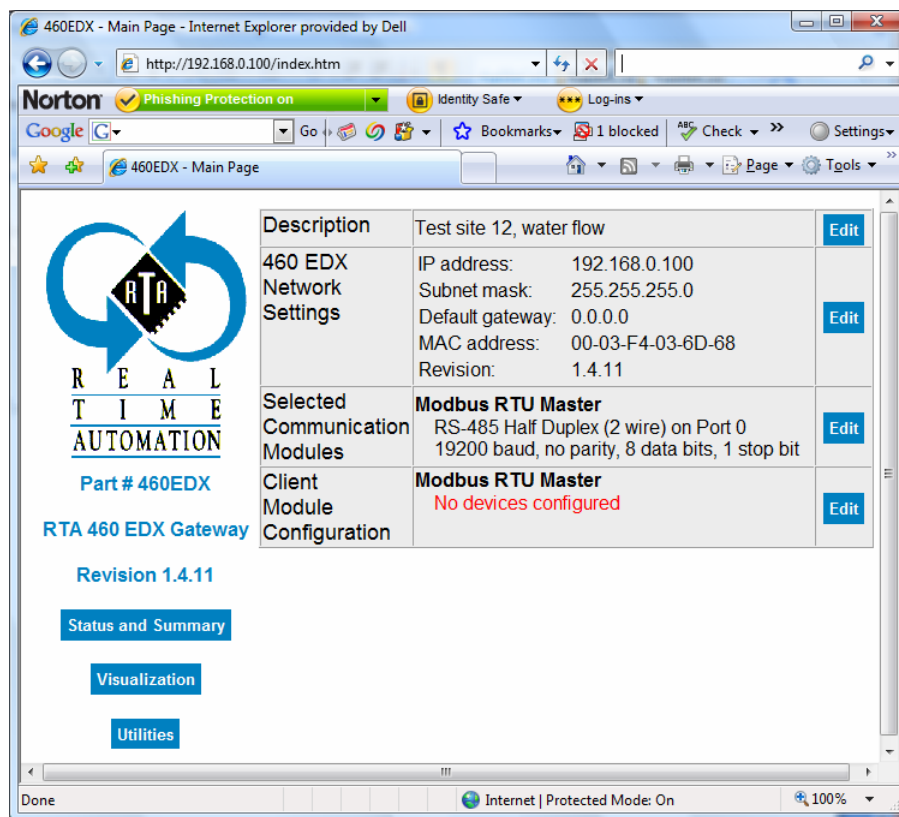


Figure 2-9 Modbus RTU Master Client Module Configuration

- Click on **Edit** next to the **Client Module Configuration**. The **External Device Configuration** screen displays.

8. For each new Device Buffer that should be enabled (1-32), click on the **Add Remote Modbus RTU Slave** button.
9. Click **Edit** in the **Action** column. See Figure 2-10.

Master and Client Module Remote Device List

[Add Remote Modbus RTU Slave](#)

Device Buffer #	Comm Module	Device Address	Data In			Data Out		
			Registers (or Coils)	Program Tags		Registers (or Coils)	Program Tags	
2	Modbus RTU Master	Slave Address 0 (1-254)	PointType	Address	Length	PointType	Address	Length
			0x Coil Status	0	0		0	0
			1x Input Status	0	0		0	0
			3x Input Reg	0	0		0	0
			4x Holding Reg	0	0		0	0
				0	0		0	0
				0	0		0	0
				0	0		0	0
				0	0		0	0
				0	0		0	0

[Save](#)
[Cancel](#)
[Clear](#)

Figure 2-10 Modbus RTU Master registers and program tags

10. Enter the Slave Address and select the data types from the drop-down menus for the registers. Enter the address and length for each data type in this Device Buffer.
11. Select **Save**. The Master and Client Module External Device List re-displays with the information entered for that Device Buffer. See Figure 2-11. To add another Device Buffer, click on the **Add Remote Modbus RTU Slave** button and then edit that buffer's settings.

Master and Client Module Remote Device List							
Add Remote Modbus RTU Slave							
Action	Device Buffer #	Comm Module	Device Address	Data In		Data Out	
				Registers (or Coils)	Program Tags	Registers (or Coils)	Program Tags
Edit	2	Modbus RTU Master	Slave# 1	40010 - 40014 [5]	%IW0 - %IW4	40110 - 40114 [5]	%QW0 - %QW4
				40020 - 40024 [5]	%IW5 - %IW9	40120 - 40124 [5]	%QW5 - %QW9
				40030 - 40034 [5]	%IW10 - %IW14	40130 - 40134 [5]	%QW10 - %QW14
				40040 - 40044 [5]	%IW15 - %IW19	40140 - 40144 [5]	%QW15 - %QW19
				40050 - 40054 [5]	%IW20 - %IW24	40150 - 40154 [5]	%QW20 - %QW24
				40060 - 40064 [5]	%IW25 - %IW29	40160 - 40164 [5]	%QW25 - %QW29

Figure 2-11 Modbus RTU Master data selections

12. When you have finished editing device buffers for the Modbus RTU Server, click on **Main**. The RTA 460 Gateway Main Page displays.

Modbus RTU Slave configuration

If your version of the 460 Gateway requires your gateway to act as a Modbus RTU Slave, use the following steps to configure the gateway. At least two Communication Modules must be configured.

- Click on **Edit** next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.
The **Communication Module Configuration** screen displays. See Figure 2-12.

➔ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

Default IP Address – 192.168.0.100

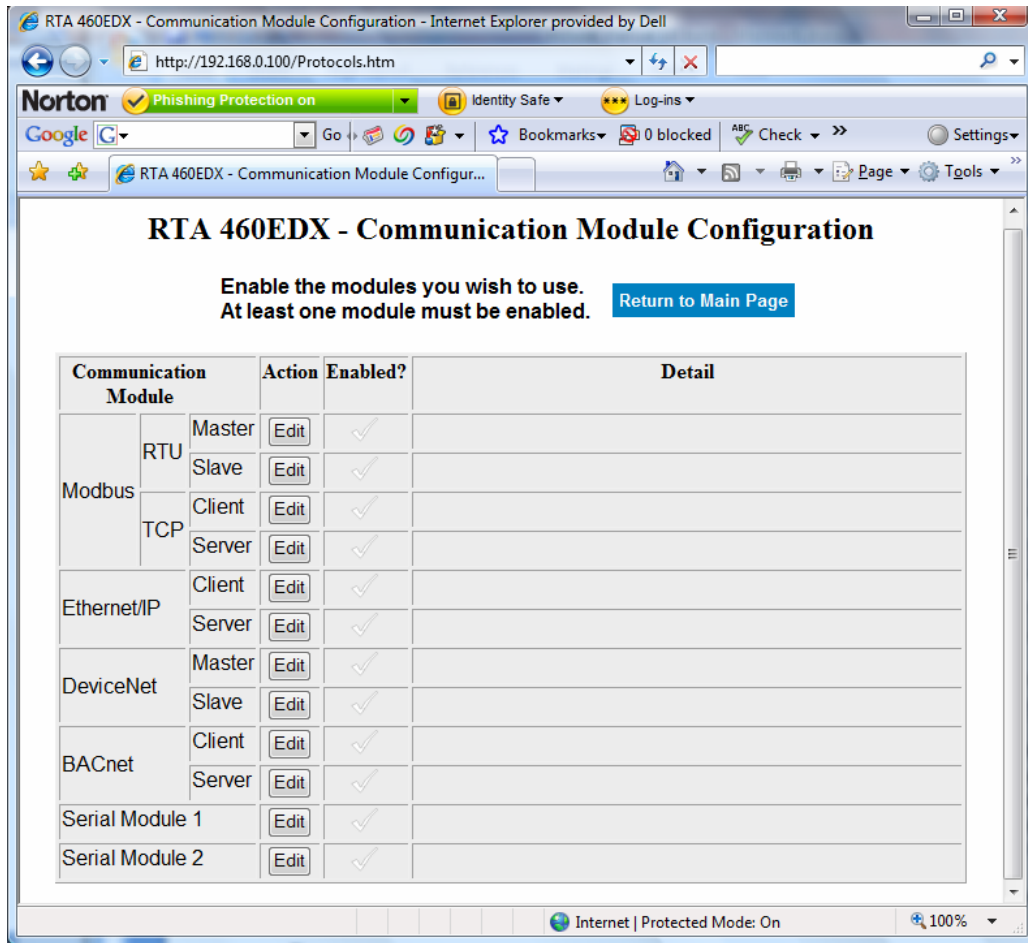


Figure 2-12 Communication Module Configuration screen

- Click on [Edit](#) next to **Modbus RTU Slave**.
The **Enabled?** prompt displays. See Figure 2-13.

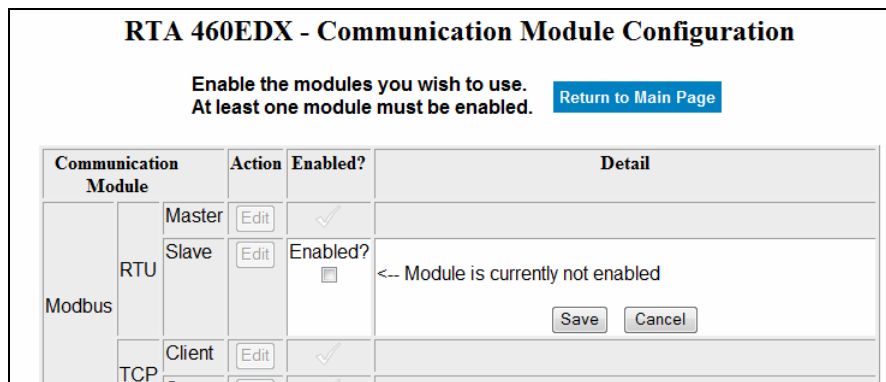


Figure 2-13 Enable Modbus RTU Slave configuration

Default IP Address – 192.168.0.100

- Click on the **Enabled?** checkbox.
The Module's Detail options expand when enabled. See Figure 2-14.

The screenshot shows the 'RTA 460EDX - Communication Module Configuration' window. At the top, it says 'Enable the modules you wish to use. At least one module must be enabled.' with a 'Return to Main Page' button. Below is a table with columns: 'Communication Module', 'Action', 'Enabled?', and 'Detail'. The 'Modbus' module is expanded, showing 'RTU' and 'TCP' options. The 'RTU' option is selected, and its details are shown on the right. The 'Enabled?' checkbox for 'RTU' is checked. The 'Detail' section for 'RTU' includes a 'Slave Addr' field set to '3' (range 1-255), a 'Connector' dropdown set to 'Port 1: DB9', a 'Mode' dropdown set to 'RS-485 Half (2 wire)', a 'Baud' dropdown set to '19200', a 'Parity' dropdown set to 'Even', and a 'Data' dropdown set to '8 Bits'. There are 'Save' and 'Cancel' buttons at the bottom of the detail section.

Communication Module	Action	Enabled?	Detail
Modbus	Master	☒	
	Slave	☒	Slave Addr 3 (1-255) Connector Port 1: DB9 Mode RS-485 Half (2 wire) Baud 19200 Parity Even Data 8 Bits Stop RS-485 Full (4 wire) Save Cancel
TCP	Client	☒	
	Server	☒	

Figure 2-14 Modbus RTU Slave configuration details

- Select the appropriate options from the drop-down menus.

➡ **Note:** Only one RS232, RS485, or CAN port setting can be active per unit. For example, a unit cannot have two ports set for RS232 or two ports set for CAN. If the same mode is selected for two communication modules, a message similar to Figure 2-15 displays.

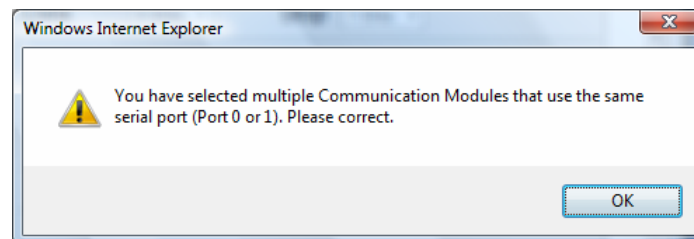


Figure 2-15 Serial port incompatibility error

- Click on **Save**.
The selections stay visible on the **Communication Module Configuration** screen, although they are grayed out. See Figure 2-16. To change these settings, click on **Edit** next to **Modbus RTU Slave** again to make any necessary changes.

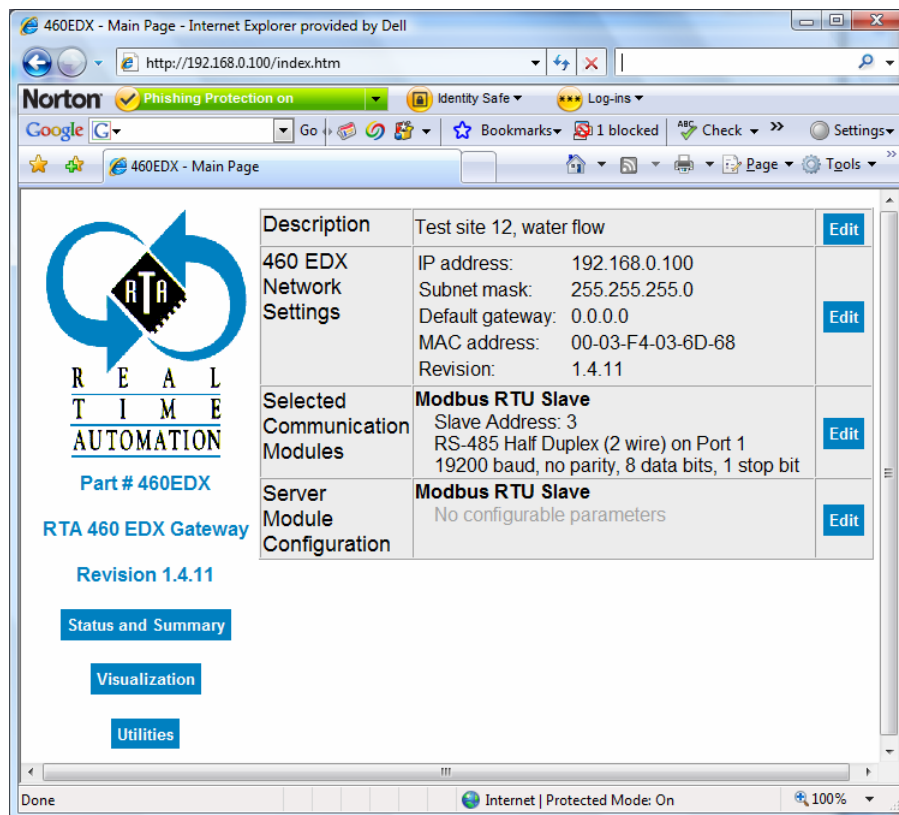
Default IP Address – 192.168.0.100

Communication Module		Action	Enabled?	Detail
Modbus	RTU	Master	Edit	☒
		Slave	Edit	☒
				Slave Addr 3 (1-255)
	TCP			Connector Port 1: DB9 Mode RS-485 Half (2 wire)
				Baud 19200 Parity None
				Data 8 Bits Stop 1 Bits
	TCP	Client	Edit	☒
		Server	Edit	☒

Figure 2-16 Modbus RTU configuration details selected

 *For Your Information: Familiar users can make all desired communication module edits before leaving this screen.*

- Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with the updated Modbus RTU Slave information. See Figure 2-17.



Description	Test site 12, water flow	Edit
460 EDX	IP address: 192.168.0.100	
Network	Subnet mask: 255.255.255.0	
Settings	Default gateway: 0.0.0.0	Edit
	MAC address: 00-03-F4-03-6D-68	
	Revision: 1.4.11	
Selected Communication Modules	Modbus RTU Slave Slave Address: 3 RS-485 Half Duplex (2 wire) on Port 1 19200 baud, no parity, 8 data bits, 1 stop bit	Edit
Server Module Configuration	Modbus RTU Slave No configurable parameters	Edit

Figure 2-17 Modbus RTU Slave Module Configuration

Modbus TCP Client configuration

If your version of the 460 Gateway requires your gateway to act as a Modbus TCP Client, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on **Edit** next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.

The **Communication Module Configuration** screen displays. See Figure 2-18.

➔ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

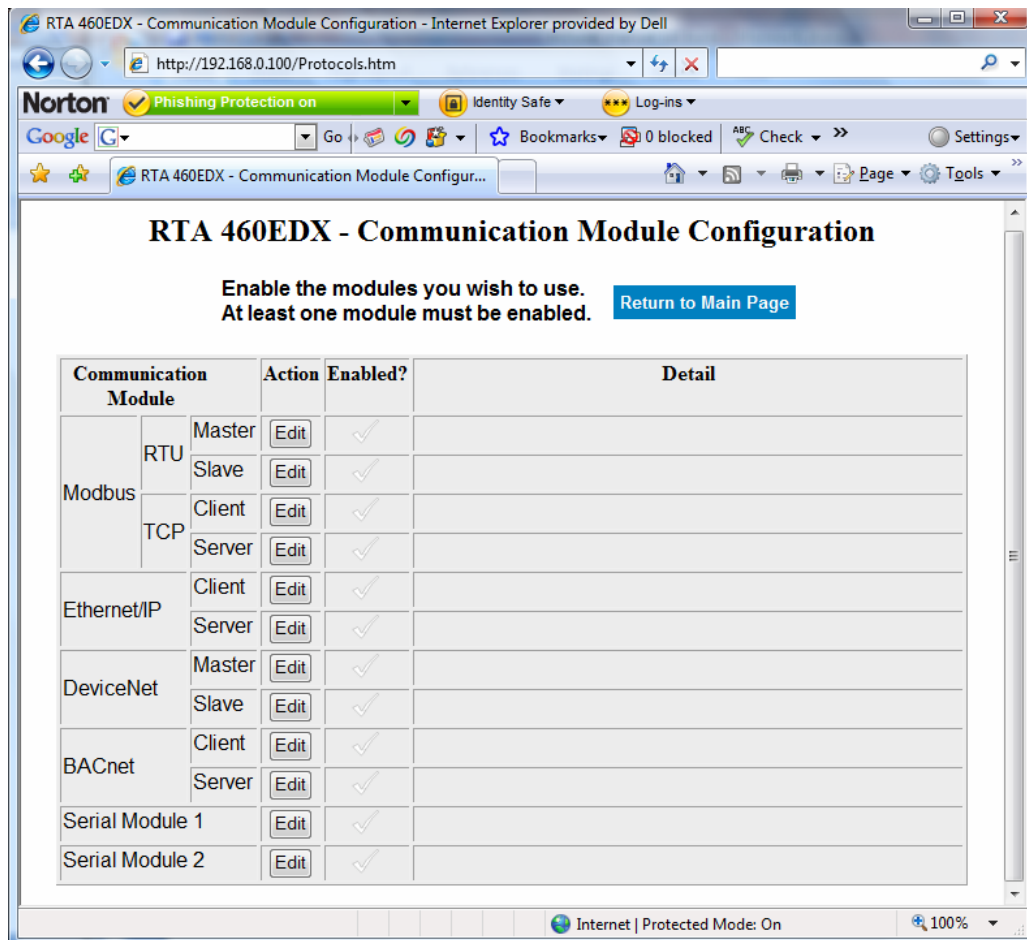


Figure 2-18 Communication Module Configuration screen

2. Click on **Edit** next to **Modbus TCP Client**.
The **Enabled?** prompt displays. See Figure 2-19.

Default IP Address – 192.168.0.100

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled. [Return to Main Page](#)

Communication Module	Action	Enabled?	Detail
Modbus	RTU Master	☒	
	RTU Slave	☒	
	TCP Client	☐	<-- Module is currently not enabled
	TCP Server	☒	
			Save Cancel

Figure 2-19 Enable Modbus TCP Client configuration

- Click on the **Enabled?** checkbox.
The Module's Detail options expand when enabled. See Figure 2-20.

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled. [Return to Main Page](#)

Communication Module	Action	Enabled?	Detail
Modbus	RTU Master	☒	
	RTU Slave	☒	
	TCP Client	☒	No configurable parameters
	TCP Server	☒	
			Save Cancel

Figure 2-20 Modbus TCP Client configuration details

- Click on **Save**.

 *For Your Information: Familiar users can make all desired communication module edits before leaving this screen.*

- Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with a Client Module Configuration option. See Figure 2-21.

Default IP Address – 192.168.0.100

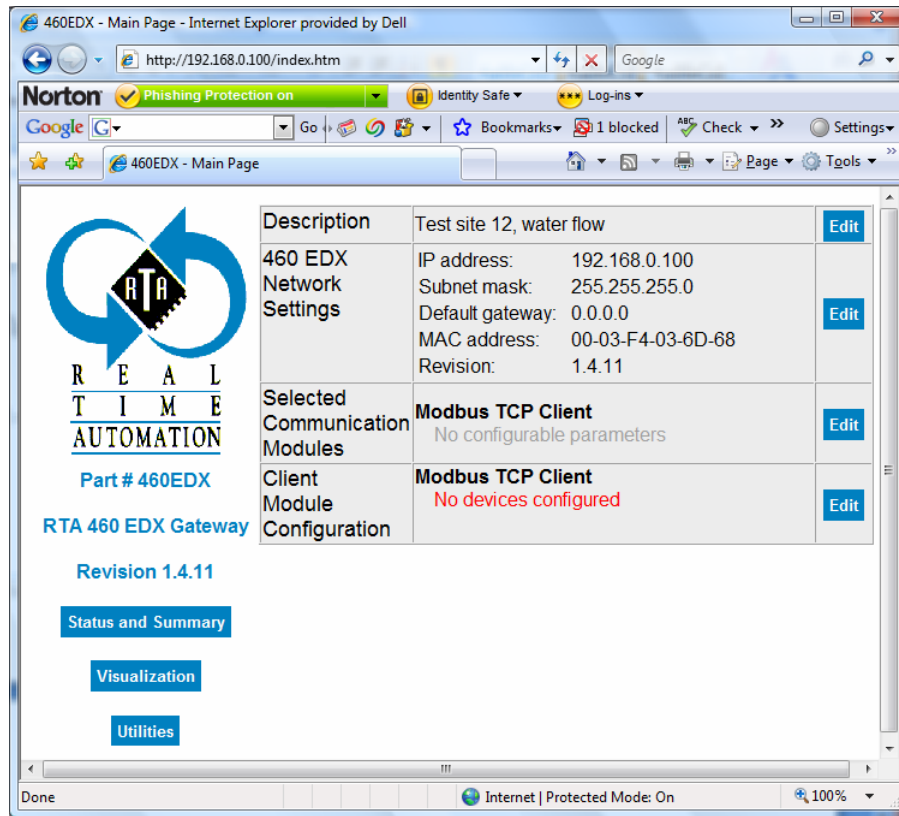


Figure 2-21 Modbus TCP Client Module Configuration

- Click on **Edit** next to the **Client Module Configuration**.
The **External Device Configuration** screen displays. See Figure 2-22.

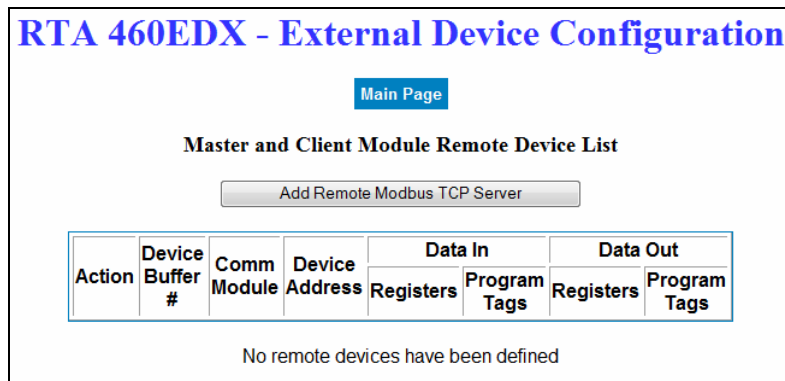


Figure 2-22 External Device Configuration screen

- For each new Device Buffer that should be enabled (1-32), click on the **Add Remote Modbus TCP Server** button.
- Click **Edit** in the **Action** column. See Figure 2-23.

Master and Client Module Remote Device List

[Add Remote Modbus TCP Server](#)

Device Buffer #	Comm Module	Device Address	Data In			Data Out		
			Registers (or Coils)	Program Tags		Registers (or Coils)	Program Tags	
2	Modbus TCP Client	Server IP Address	PointType	Address	Length	PointType	Address	Length
		0.0.0.0	▼	0	0	▼	0	0
		Unit ID	0x Coil Status	0	0	▼	0	0
		0	1x Input Status	0	0	▼	0	0
			3x Input Reg	0	0	▼	0	0
			4x Holding Reg	0	0	▼	0	0
			▼	0	0	▼	0	0
			▼	0	0	▼	0	0
			▼	0	0	▼	0	0
			▼	0	0	▼	0	0
			▼	0	0	▼	0	0
			▼	0	0	▼	0	0

[Save](#)
[Cancel](#)
[Clear](#)

Figure 2-23 Modbus TCP Client registers and program tags

9. Enter the Server IP Address and Unit ID. Select the data types (RegType) from the drop-down menus for the registers. Enter the address and length for each data type in this Device Buffer.
10. Select **Save**. The Master and Client Module External Device List re-displays with the information entered for that Device Buffer. See Figure 2-24. To add another Device Buffer, click on the **Add Remote Modbus TCP Server** button and then edit that buffer's settings.

Default IP Address – 192.168.0.100

Master and Client Module Remote Device List							
Add Remote Modbus TCP Server							
Action	Device Buffer #	Comm Module	Device Address	Data In		Data Out	
				Registers (or Coils)	Program Tags	Registers (or Coils)	Program Tags
Edit	2	Modbus TCP Client	IP: 192.168.0.101 Unit ID: 17	40500 - 40524 [25]	%IW0 - %IW24	41500 - 41524 [25]	%QW0 - %QW24
				40550 - 40574 [25]	%IW25 - %IW49	41550 - 41574 [25]	%QW25 - %QW49
				40600 - 40624 [25]	%IW50 - %IW74	41600 - 41624 [25]	%QW50 - %QW74
				40650 - 40674 [25]	%IW75 - %IW99	41650 - 41674 [25]	%QW75 - %QW99
				40700 - 40724 [25]	%IW100 - %IW124	41700 - 41724 [25]	%QW100 - %QW124

Figure 2-24 Modbus TCP Client data selections

11. When you have finished editing device buffers for the Modbus TCP Client, click on Main. The RTA 460 Gateway Main Page displays.

Modbus TCP Server configuration

If your version of the 460 Gateway requires your gateway to act as a Modbus TCP Server, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on Edit next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2. The **Communication Module Configuration** screen displays. See Figure 2-25.

➡ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

Default IP Address – 192.168.0.100

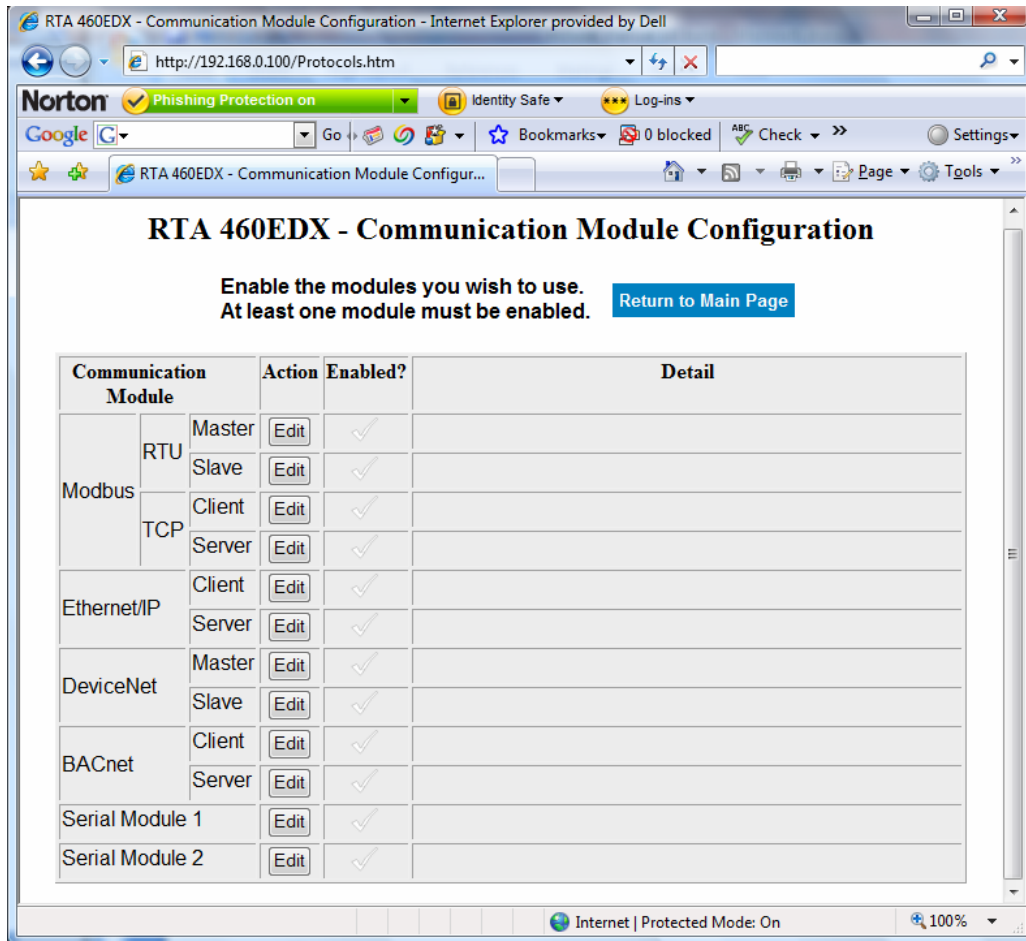


Figure 2-25 Communication Module Configuration screen

- Click on [Edit](#) next to **Modbus TCP Server**.
The **Enabled?** prompt displays. See Figure 2-26.

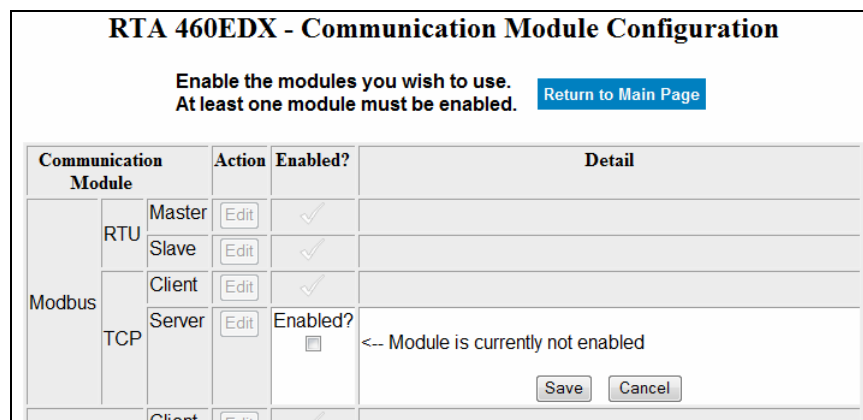


Figure 2-26 Enable Modbus TCP Server configuration

Default IP Address – 192.168.0.100

3. Click on the **Enabled?** checkbox.
4. Click on **Save**.

 *For Your Information: Familiar users can make all desired communication module edits before leaving this screen.*

5. Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with the updated Modbus TCP Server information. See Figure 2-27.

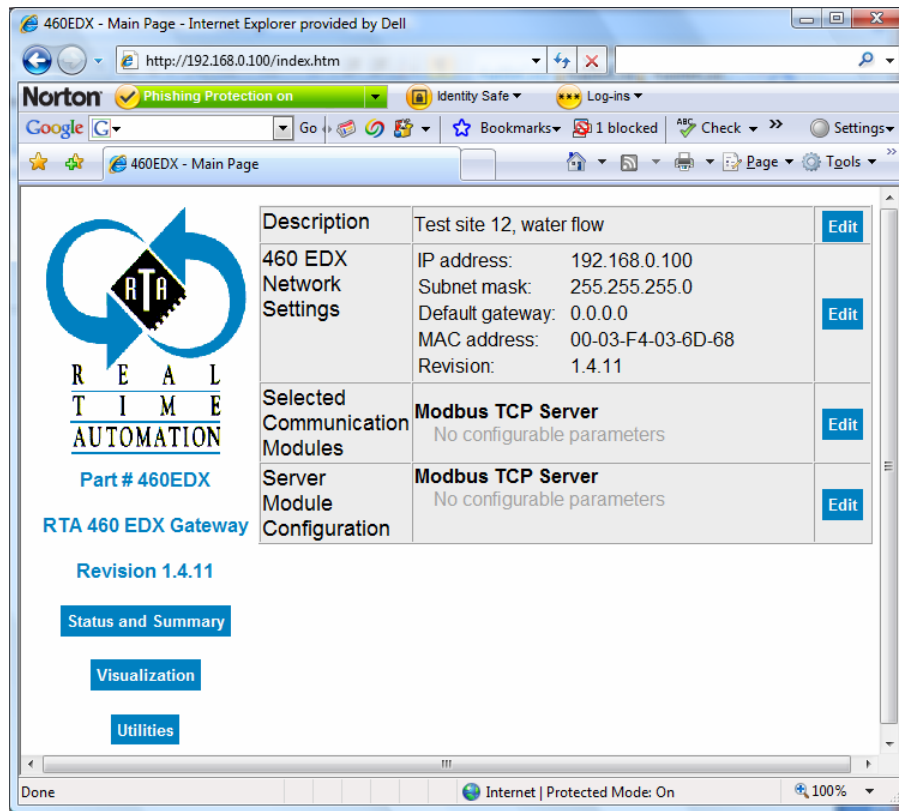


Figure 2-27 Modbus TCP Server Configuration

EtherNet/IP Client configuration

If your version of the 460 Gateway requires your gateway to act as an EtherNet/IP Client, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on **Edit** next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.

The **Communication Module Configuration** screen displays. See Figure 2-28.

➔ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

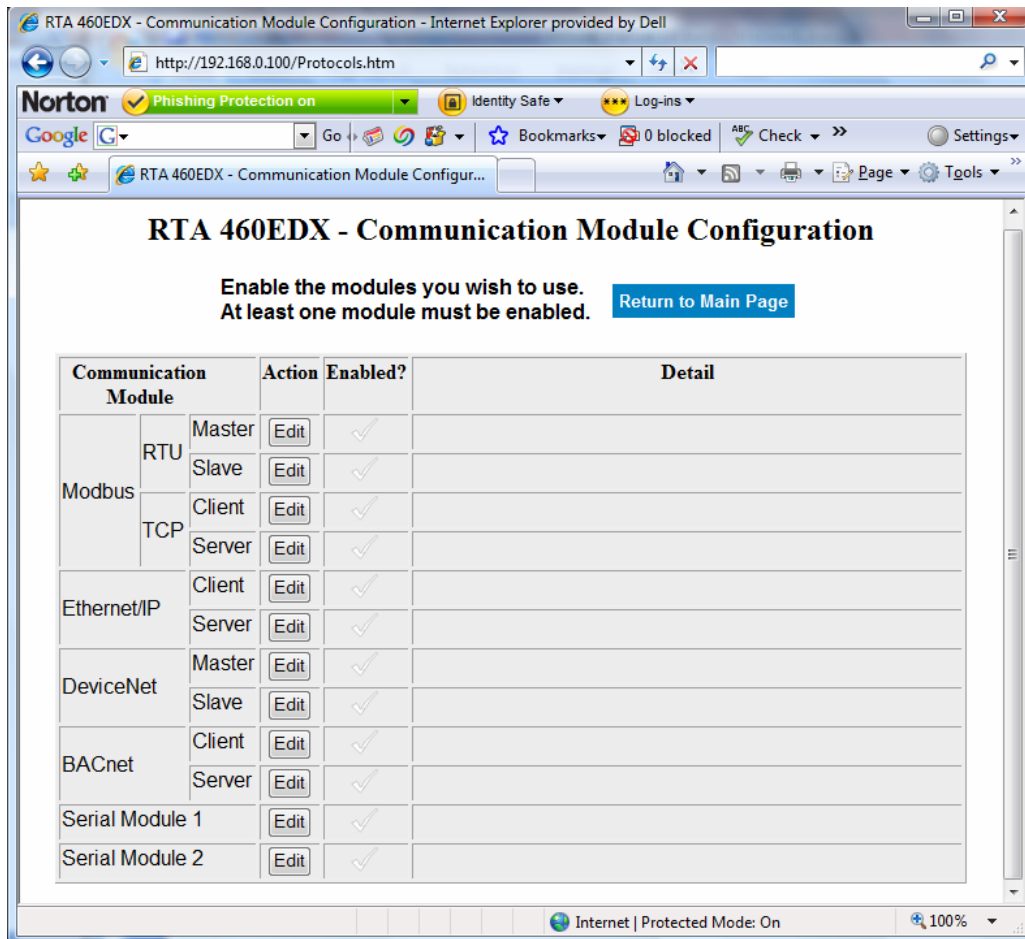


Figure 2-28 Communication Module Configuration screen

Default IP Address – 192.168.0.100

- Click on **Edit** next to **EtherNet/IP Client**.
The **Enabled?** prompt displays. See Figure 2-29.

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled. [Return to Main Page](#)

Communication Module	Action	Enabled?	Detail
Modbus	RTU Master	☒	
	RTU Slave	☒	
	TCP Client	☒	
	TCP Server	☒	
Ethernet/IP	Client	☒	<-- Module is currently not enabled Save Cancel
	Server	☒	

Figure 2-29 Enable EtherNet/IP Client configuration

- Click on the **Enabled?** checkbox.
The Module's Detail options expand when enabled. See Figure 2-30.

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled. [Return to Main Page](#)

Communication Module	Action	Enabled?	Detail
Modbus	RTU Master	☒	
	RTU Slave	☒	
	TCP Client	☒	
	TCP Server	☒	
Ethernet/IP	Client	☒	No configurable parameters Save Cancel
	Server	☒	

Figure 2-30 EtherNet/IP Client configuration details

- Click on **Save**.

 *For Your Information: Familiar users can make all desired communication module edits before leaving this screen.*

Default IP Address – 192.168.0.100

- Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with a Client Module Configuration option. See Figure 2-31.

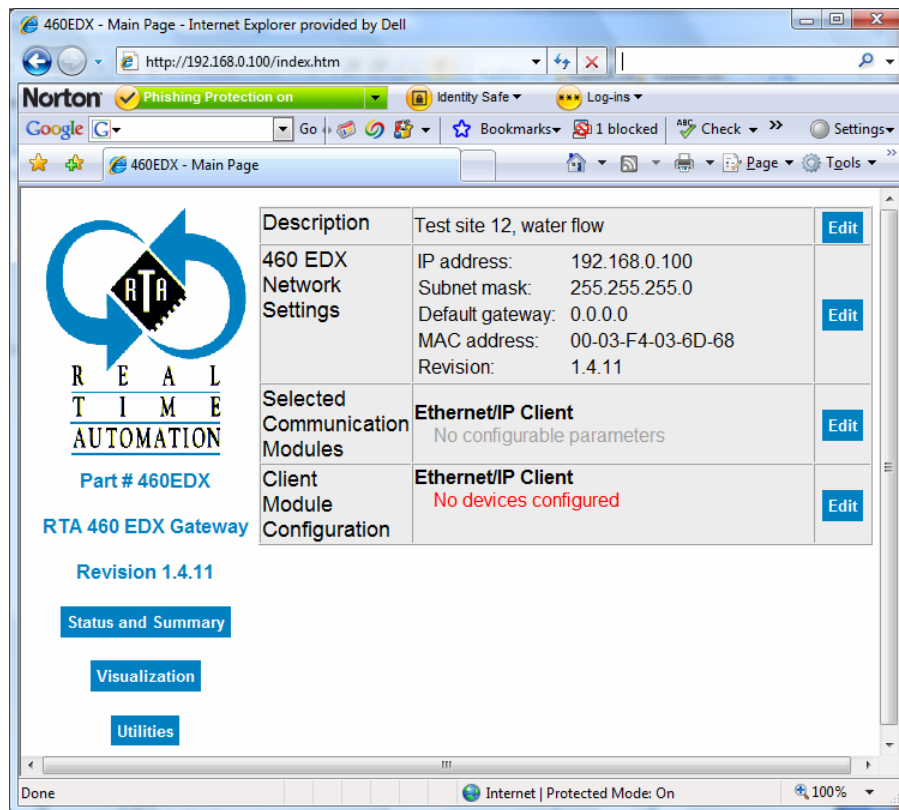


Figure 2-31 EtherNet/IP Client Module Configuration

- Click on the [Edit](#) next to the **Client Module Configuration**. The **External Device Configuration** screen displays. See Figure 2-32.

Default IP Address – 192.168.0.100



Figure 2-32 External Device Configuration screen

7. To enable a Device Buffer, click on the **Add Remote Ethernet/IP Server** button.
8. Click **Edit** in the **Action** column.
9. Enter the Device Address. Select the data types (RegType) from the drop-down menus for the registers. Enter the registers and program tags for each data type in this Device Buffer.
10. Select **Save**. The Master and Client Module External Device List re-displays with the information entered for that Device Buffer. To add another Device Buffer, click on the **Add Remote Ethernet/IP Server** button and then edit that buffer's settings.
11. When you have finished enabling Device Buffers for the EtherNet/IP Client, click on **Main**. The RTA 460 Gateway Main Page displays.

EtherNet/IP Server configuration

If your version of the 460 Gateway requires your gateway to act as an EtherNet/IP Server, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on **Edit** next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.

The **Communication Module Configuration** screen displays. See Figure 2-34.

➡ **Note:** The **Edit** buttons are grayed out when the task applies to a different **460 Gateway** version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

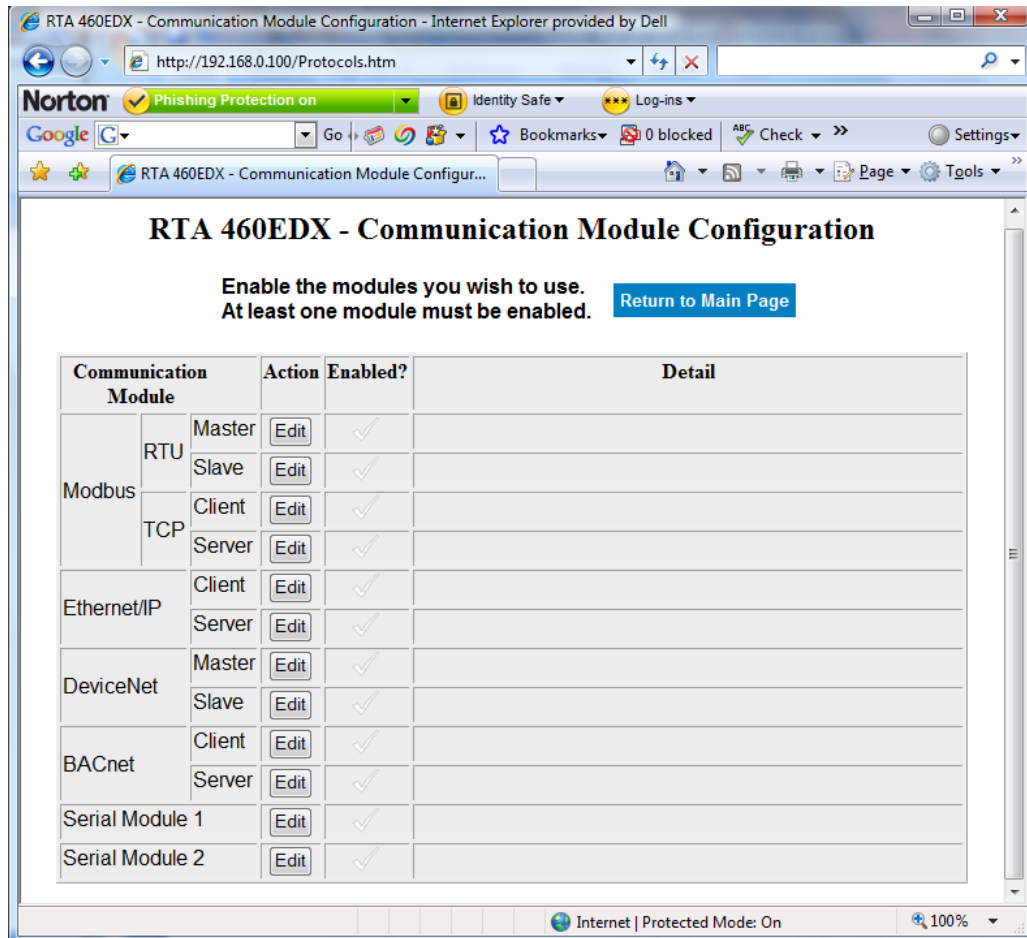


Figure 2-34 Communication Module Configuration screen

2. Click on **Edit** next to **Ethernet/IP Server**.
The **Enabled?** prompt displays. See Figure 2-35.

Default IP Address – 192.168.0.100

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled. [Return to Main Page](#)

Communication Module		Action	Enabled?	Detail	
Modbus	RTU	Master	Edit	☒	
		Slave	Edit	☒	
	TCP	Client	Edit	☒	
		Server	Edit	☒	
Ethernet/IP	Client	Edit	☒		
	Server	Edit	☐	<-- Module is currently not enabled Save Cancel	
DeviceNet	Master	Edit	☒		
	Slave	Edit	☒		

Figure 2-35 Enable EtherNet/IP Server configuration

3. Click on the **Enabled?** checkbox.
4. Click on **Save**.

 *For Your Information: Familiar users can make all desired communication module edits before leaving this screen.*

5. Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with the updated EtherNet/IP Server information. See Figure 2-36.

Default IP Address – 192.168.0.100

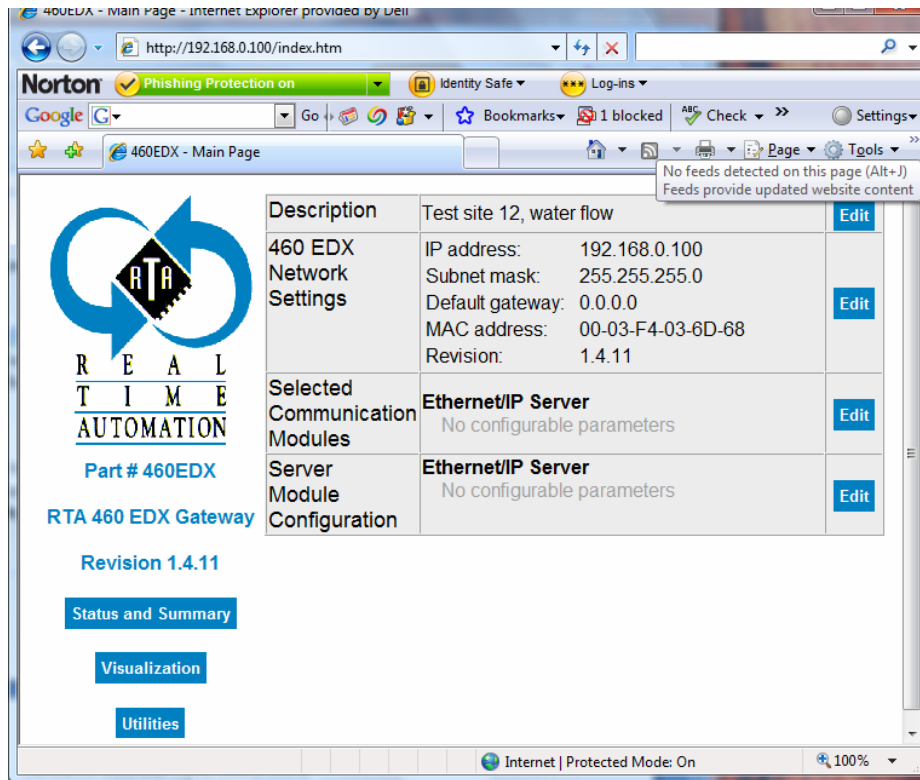


Figure 2-36 EtherNet/IP Server Configuration

DeviceNet Master configuration

If your version of the 460 Gateway requires your gateway to act as a DeviceNet Master, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on **Edit** next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.
The **Communication Module Configuration** screen displays. See Figure 2-37.

➡ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

Default IP Address – 192.168.0.100

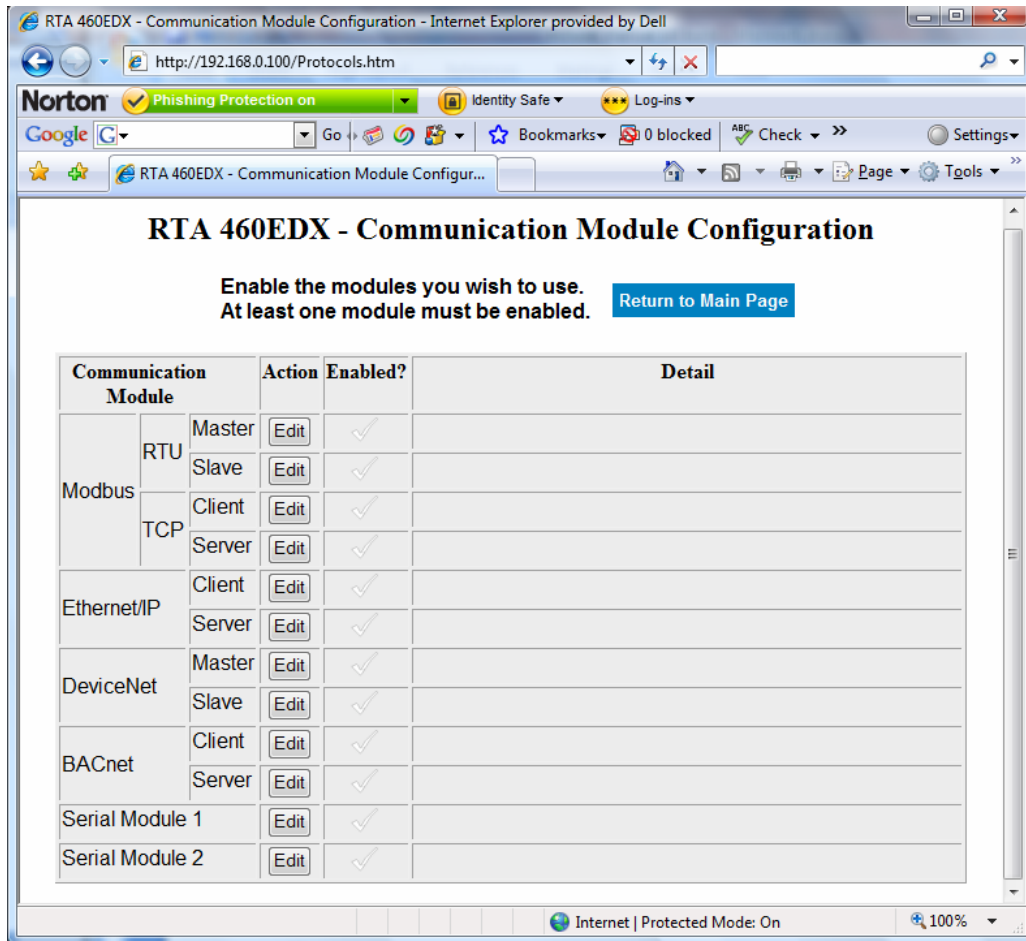


Figure 2-37 Communication Module Configuration screen

- Click on **Edit** next to next to **DeviceNet Master**.
The **Enabled?** prompt displays. See Figure 2-38.

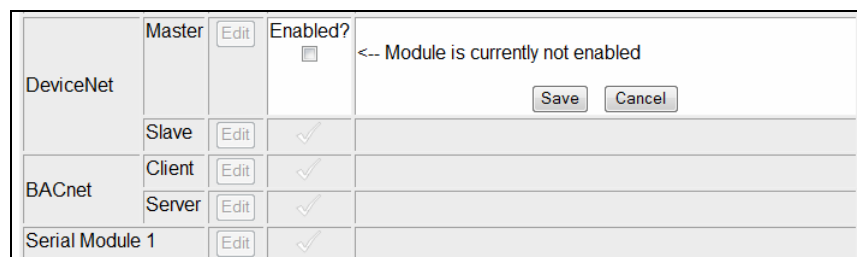


Figure 2-38 Enable DeviceNet Master configuration

- Click on the **Enabled?** checkbox.
The Module's Detail options expand when enabled. See Figure 2-39.

Default IP Address – 192.168.0.100

Ethernet/IP	Client	Edit	✓	
	Server	Edit	✓	
DeviceNet	Master	Edit	Enabled? ☒	MacID 0 (0-63) Connector Port 0: TStrip Mode CAN Baud Port 0: TStrip Port 1: DB9 Save Cancel
	Slave	Edit	✓	

Figure 2-39 DeviceNet Master configuration details

4. Select the appropriate communication options from the drop-down menus.
5. Click on **Save**.
The selections stay visible on the **Communication Module Configuration** screen, although they are grayed out (until you select **Edit** again). See Figure 2-40.

DeviceNet	Master	Edit	✓	MacID 0 (0-63) Connector Port 0: TStrip Mode CAN Baud 500K
	Slave	Edit	✓	
BACnet	Client	Edit	✓	
	Server	Edit	✓	

Figure 2-40 DeviceNet Master configuration details selected

 *For Your Information: Familiar users can make all desired communication module edits before completing the external device list for the master/client devices. The order of the configuration steps do not matter as long as the communication module is enabled.*

6. Click on the **Return to Main** button. The RTA 460 Gateway Main Page displays with a Client Module Configuration option. See Figure 2-41.

Default IP Address – 192.168.0.100

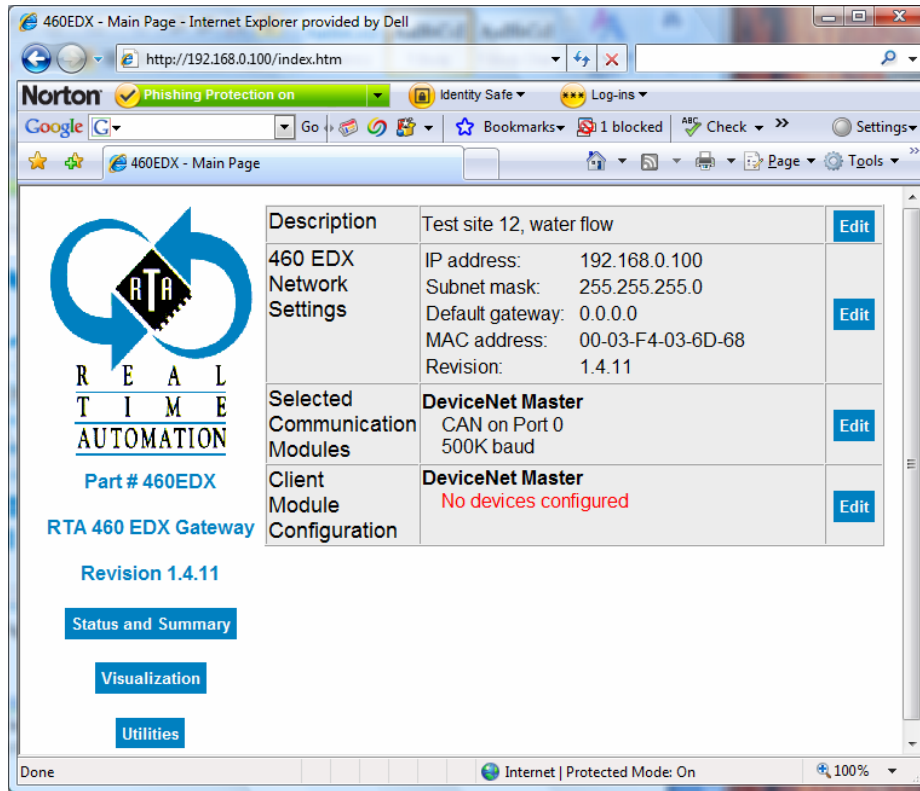


Figure 2-41 DeviceNet Master Client Module Configuration

- Click on **Edit** next to the **Client Module Configuration**. The **External Device Configuration** screen displays. See Figure 2-42.

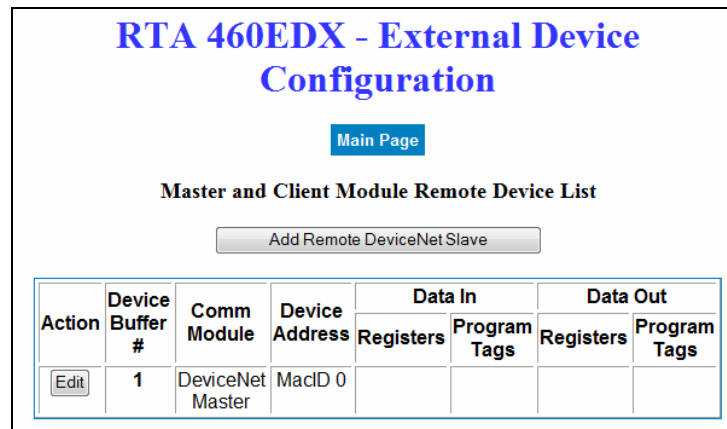


Figure 2-42 External Device Configuration screen

- Click **Edit** in the **Action** column.
- Enter the slave's MAC ID and the Assembly Length for Data In and Data Out.
- Select **Save**. The Master and Client Module External Device List re-displays with the information entered for that Device Buffer. See Figure 2-43. To add another Device

Default IP Address – 192.168.0.100

Buffer, click on the **Add Remote DeviceNet Slave** button and then edit that buffer's settings.

RTA 460EDX - External Device Configuration

Main Page

Master and Client Module Remote Device List

Add Remote DeviceNet Slave

Action	Device Buffer #	Comm Module	Device Address	Data In		Data Out	
				Registers	Program Tags	Registers	Program Tags
Edit	1	DeviceNet Master	MacID 20	1 - 12 [12]	%IW0 - %IW11	1 - 12 [12]	%QW0 - %QW11
Edit	2	DeviceNet Master	MacID 40	1 - 10 [10]	%IW0 - %IW9	1 - 10 [10]	%QW0 - %QW9

Figure 2-43 DeviceNet Master data selections

11. When you have finished editing device buffers for the DeviceNet Master, click on  The RTA 460 Gateway Main Page displays.

DeviceNet Slave configuration

If your version of the 460 Gateway requires your gateway to act as a DeviceNet Slave, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on  next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.
The **Communication Module Configuration** screen displays. See Figure 2-44.

➡ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

Default IP Address – 192.168.0.100

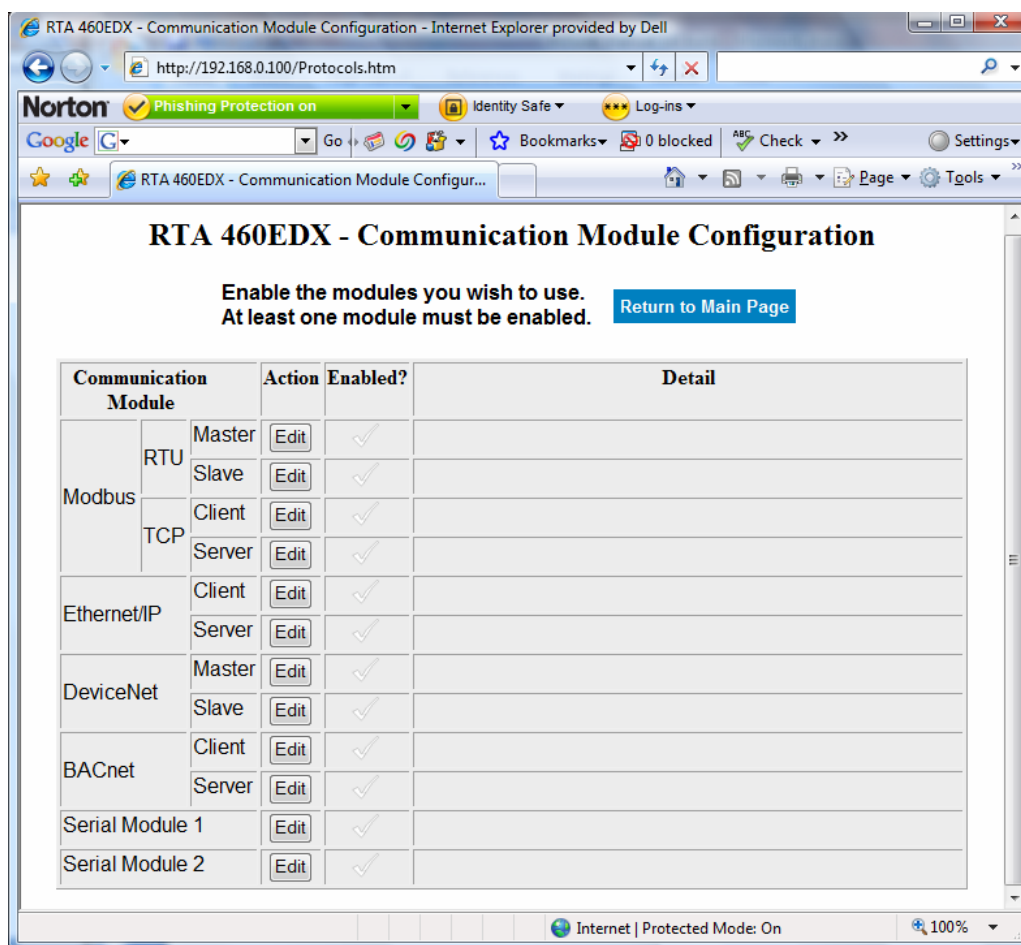


Figure 2-44 Communication Module Configuration screen

2. Click on [Edit](#) next to **DeviceNet Slave**.
The **Enabled?** prompt displays. See Figure 2-45.

Default IP Address – 192.168.0.100

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled.

Return to Main Page

Communication Module		Action	Enabled?	Detail	
Modbus	RTU	Master	Edit	☒	
		Slave	Edit	☒	
	TCP	Client	Edit	☒	
		Server	Edit	☒	
Ethernet/IP	Client	Edit	☒		
	Server	Edit	☒		
DeviceNet	Master	Edit	☒		
	Slave	Edit	Enabled? ☐	<-- Module is currently not enabled Save Cancel	
BACnet	Client	Edit	☒		

Figure 2-45 Enable DeviceNet Slave configuration

3. Click on the **Enabled?** checkbox.
- The Module’s Detail options expand when enabled. See Figure 2-46.

DeviceNet	Master	Edit	☒	
	Slave	Edit	Enabled? ☒	MacID 55 (0-63) Connector Port 0: TStrip Mode CAN Baud Port 0: TStrip Port 1: DB9 Save Cancel
	Client	Edit	☒	

Figure 2-46 DeviceNet Slave configuration details

4. Select the appropriate options from the drop-down menus.
5. Click on **Save**.
- The selections stay visible on the **Communication Module Configuration** screen, although they are grayed out. See Figure 2-47. To change these settings, click on

Edit

 next to **DeviceNet Slave** again to make any necessary changes.

Default IP Address – 192.168.0.100

DeviceNet	Master	Edit	☒	
	Slave	Edit	☒	MacID 55 (0-63) Connector Port 0: TStrip Mode CAN Baud 500K
BACnet	Client	Edit	☒	
	Server	Edit	☒	

Figure 2-47 DeviceNet Slave configuration details selected



For Your Information: Familiar users can make all desired communication module edits before leaving this screen.

- Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with the updated DeviceNet Slave information. See Figure 2-48.

Description	Test site 12, water flow	Edit
460 EDX Network Settings	IP address: 192.168.0.100 Subnet mask: 255.255.255.0 Default gateway: 0.0.0.0 MAC address: 00-03-F4-03-6D-68 Revision: 1.4.11	Edit
Selected Communication Modules	DeviceNet Slave CAN on Port 0 500K baud	Edit
Server Module Configuration	DeviceNet Slave No configurable parameters	Edit

REAL TIME AUTOMATION
 Part # 460EDX
 RTA 460 EDX Gateway
 Revision 1.4.11
[Status and Summary](#)
[Visualization](#)
[Utilities](#)

Figure 2-48 DeviceNet Slave Module Configuration

BACnet/IP Client configuration

If your version of the 460 Gateway requires your gateway to act as a BACnet/IP Client, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on **Edit** next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.

The **Communication Module Configuration** screen displays. See Figure 2-49.

➔ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

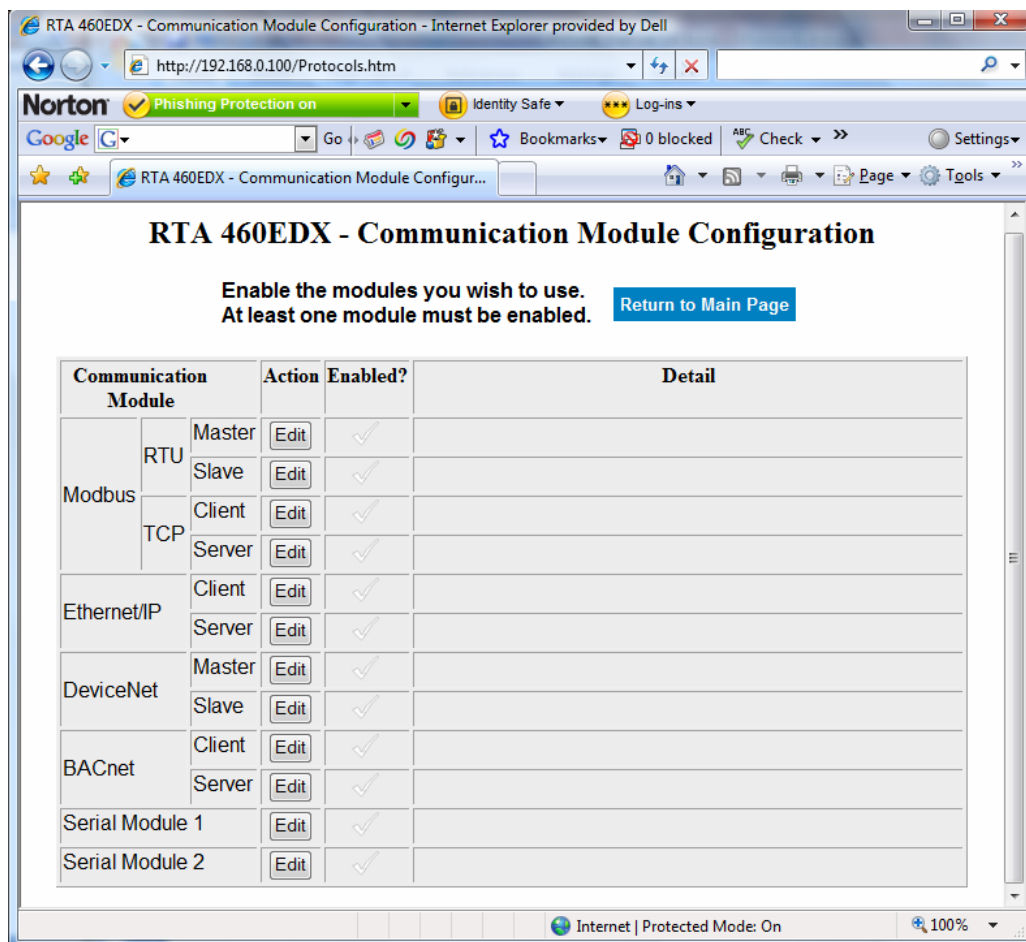


Figure 2-49 Communication Module Configuration screen

2. Click on **Edit** next to **BACnet Client**.
The **Enabled?** prompt displays. See Figure 2-50.

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled. [Return to Main Page](#)

Communication Module		Action	Enabled?	Detail
Modbus	RTU	Master	☒	
		Slave	☒	
	TCP	Client	☒	
		Server	☒	
Ethernet/IP	Client	☒		
	Server	☒		
DeviceNet	Master	☒		
	Slave	☒		
BACnet	Client	☐	☐ <-- Module is currently not enabled	
	Server	☒		
Serial Module 1		☒		
Serial Module 2		☒		

Save Cancel

Figure 2-50 Enable BACnet/IP Client configuration

3. Click on the **Enabled?** checkbox.
4. Click on **Save**.

 *For Your Information: Familiar users can make all desired communication module edits before leaving this screen.*

5. Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with a Client Module Configuration option. See Figure 2-51.

Default IP Address – 192.168.0.100

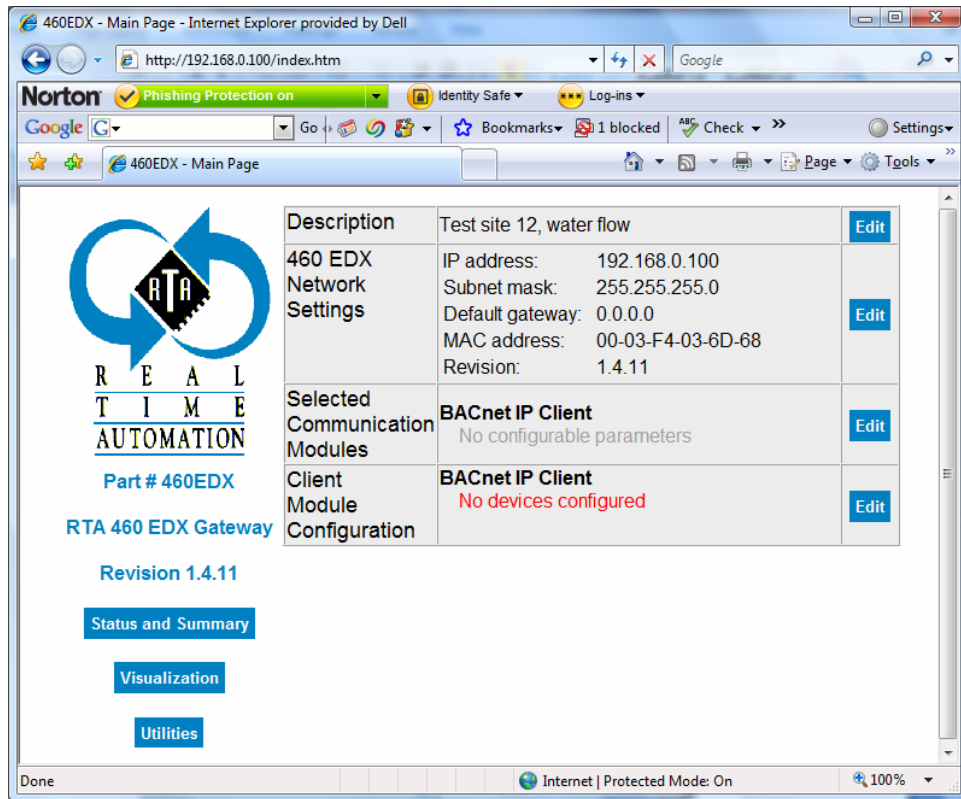


Figure 2-51 BACnet/IP Client Module Configuration

- Click on [Edit](#) next to the **Client Module Configuration**. The **External Device Configuration** screen displays.
- Click **Edit** in the **Action** column. See Figure 2-52.

Default IP Address – 192.168.0.100

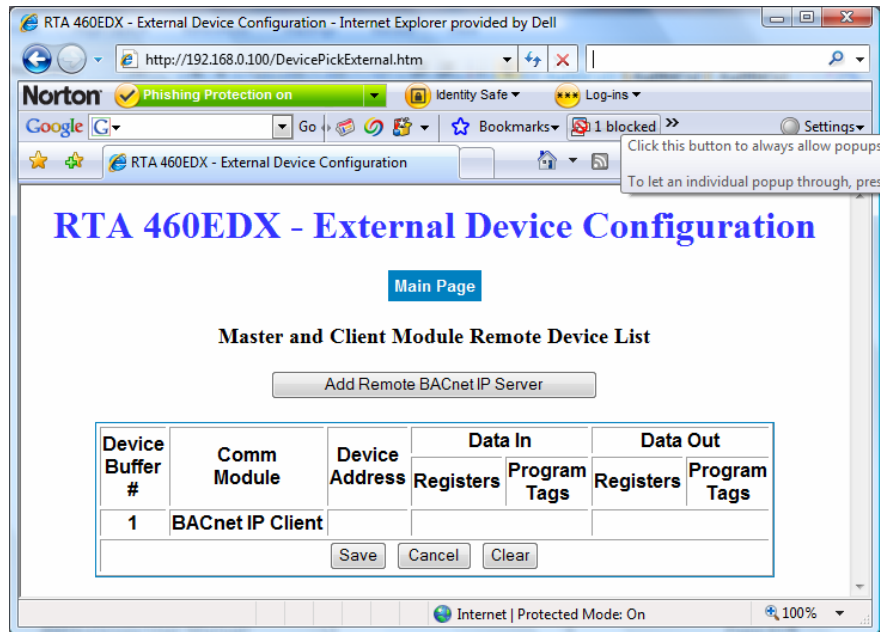


Figure 2-52 External Device Configuration screen

8. Enter the Device Address. Enter the registers and program tags for each data type in this Device Buffer.
9. Select **Save**. The Master and Client Module External Device List re-displays with the information entered for that Device Buffer. To add another Device Buffer, click on the **Add Remote BACnet/IP Server** button and then edit that buffer's settings.
10. When you have finished enabling Device Buffers for the BACnet/IP Client, click on Main. The RTA 460 Gateway Main Page displays.

BACnet/IP Server configuration

If your version of the 460 Gateway requires your gateway to act as a BACnet/IP Server, use the following steps to configure the gateway. At least two Communication Modules must be configured.

1. Click on Edit next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.
The **Communication Module Configuration** screen displays. See Figure 2-54.

➡ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time

Default IP Address – 192.168.0.100

Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

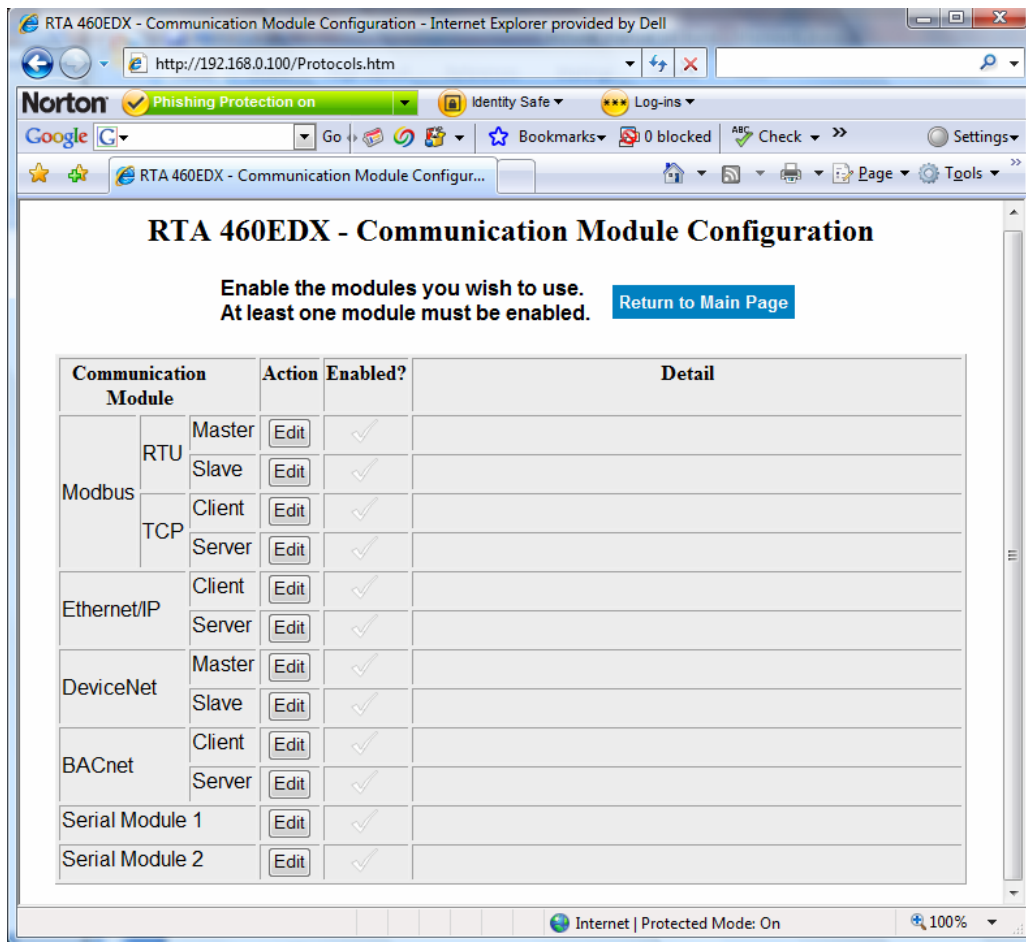


Figure 2-54 Communication Module Configuration screen

- Click on [Edit](#) next to **BACnet Server**.
The **Enabled?** prompt displays. See Figure 2-55.

Default IP Address – 192.168.0.100

DeviceNet	Master	Edit	☒	
	Slave	Edit	☒	
BACnet	Client	Edit	☒	
	Server	Edit	☐ Enabled?	<-- Module is currently not enabled Save Cancel
Serial Module 1		Edit	☒	
Serial Module 2		Edit	☒	

Figure 2-55 Enable BACnet/IP configuration

- Click on the **Enabled?** checkbox.
The Module's Detail options expand when enabled. See Figure 2-56.

DeviceNet	Master	Edit	☒	
	Slave	Edit	☒	
BACnet	Client	Edit	☒	
	Server	Edit	☒ Enabled?	Device Instance: 0 (0-4194303) Device Name: Description: Location: Save Cancel
Serial Module 1		Edit	☒	
Serial Module 2		Edit	☒	

Figure 2-56 BACnet/IP Server configuration details

- Enter the appropriate Device Instance number and descriptions.
- Click on **Save**.
The selections stay visible on the **Communication Module Configuration** screen, although they are grayed out. See Figure 2-57. To change these settings, click on next to **BACnet Server** again to make any necessary changes.

Default IP Address – 192.168.0.100

DeviceNet	Master	Edit	✓	
	Slave	Edit	✓	
BACnet	Client	Edit	✓	
	Server	Edit	✓	Device Instance: 644 (0-4194303) Device Name: flow controller 2 Description: water pressure relief Location: sw, layer 12
Serial Module 1		Edit	✓	
Serial Module 2		Edit	✓	

Figure 2-57 BACnet/IP Server configuration details selected

 *For Your Information: Familiar users can make all desired communication module edits before leaving this screen.*

- Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with the updated BACnet/IP Server information. See Figure 2-58.



Description	Test site 12, water flow	Edit
460 EDX Network Settings	IP address: 192.168.0.100 Subnet mask: 255.255.255.0 Default gateway: 0.0.0.0 MAC address: 00-03-F4-03-6D-68 Revision: 1.4.11	Edit
Selected Communication Modules	BACnet IP Server Device Instance: 644 Device Name: flow controller 2 Description: water pressure relief Location: sw, layer 12	Edit
Server Module Configuration	BACnet IP Server No configurable parameters	Edit

Figure 2-58 BACnet/IP Server Module Configuration

Serial configuration (Modules 1 and 2)

If your version of the 460 Gateway requires your gateway to act as a serial device, use the following steps to configure the gateway. If you are connecting the 460 Gateway to two different serial devices, repeat these directions to configure Serial Module 2.

Since the 460 Gateway translates data between devices with different protocols, at least two Communication Modules must be configured.

1. Click on **Edit** next to the **Selected Communication Modules** on the RTA 460 Gateway Main Page. See Figure 2-2.

The **Communication Module Configuration** screen displays. See Figure 2-59.

➔ **Note:** The **Edit** buttons are grayed out when the task applies to a different 460 Gateway version than you purchased. Please contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more information about 460 Gateway configurations.

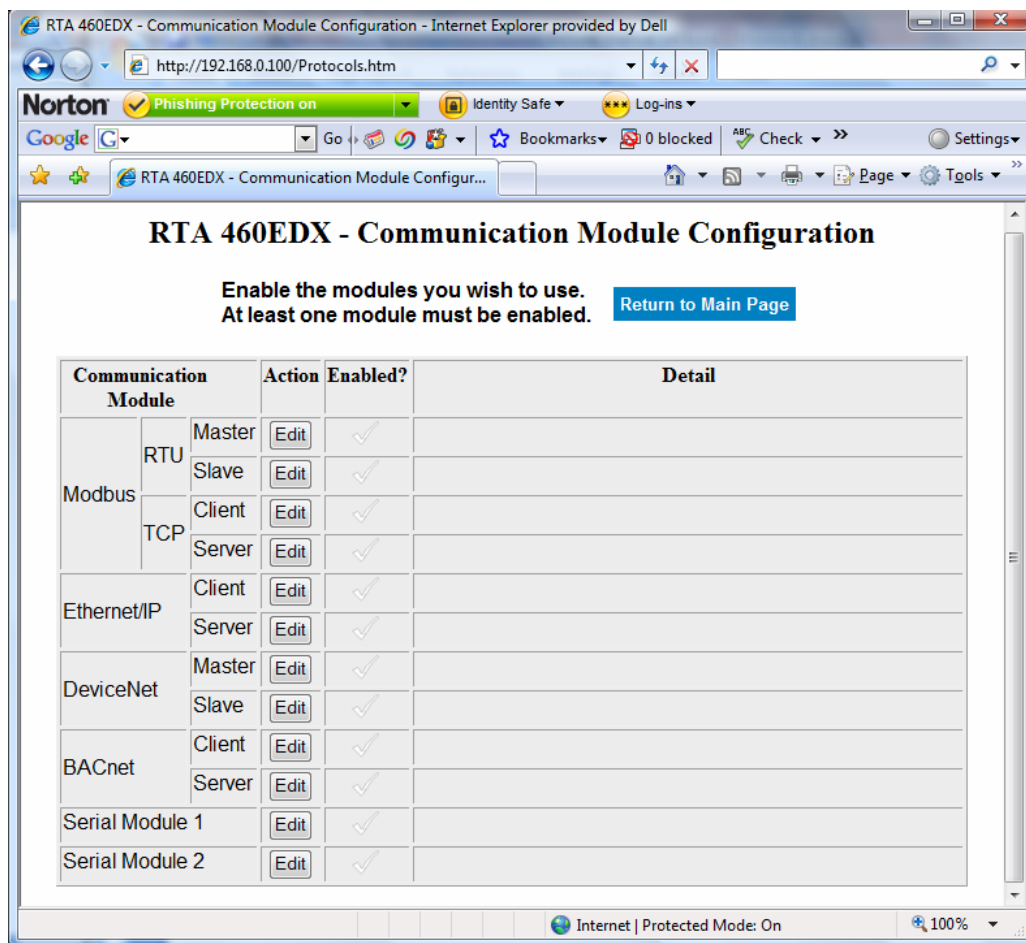


Figure 2-59 Communication Module Configuration screen

- Click on **Edit** next to next to **Serial Module 1** (or **Serial Module 2**). The **Enabled?** prompt displays. See Figure 2-60.

RTA 460EDX - Communication Module Configuration

Enable the modules you wish to use.
At least one module must be enabled. [Return to Main Page](#)

Communication Module		Action	Enabled?	Detail
Modbus	RTU	Master	Edit	☒
		Slave	Edit	☒
	TCP	Client	Edit	☒
		Server	Edit	☒
Ethernet/IP	Client	Edit	☒	
	Server	Edit	☒	
DeviceNet	Master	Edit	☒	
	Slave	Edit	☒	
BACnet	Client	Edit	☒	
	Server	Edit	☒	
Serial Module 1		Edit	Enabled? ☐	<-- Module is currently not enabled Save Cancel
Serial Module 2		Edit	☒	

Figure 2-60 Enable Serial Module configuration

- Click on the **Enabled?** checkbox.
The Module's Detail options expand when enabled. See Figure 2-61.
- Select the appropriate communication options.
Data flow is controlled in three ways: maximum message length, receive character timeout, and delimiters. You can use any combination (or none) of these methods.

 *For Your Information: The Device Status and Summary button on the 460 Gateway's Main Web page displays the data messages transmitted and the method that terminated that message, which aides in troubleshooting.*

Default IP Address – 192.168.0.100

The screenshot shows the 'Serial Module 1' configuration window. It includes an 'Edit' button and an 'Enabled?' checkbox which is checked. The 'Incoming Messages' section contains fields for 'Maximum message length' (255), 'Receive character timeout' (1000 milliseconds), and four dropdown menus for '1ST' and '2ND' start and end delimiters, all set to 'Unused'. There is also a 'Discard all delimiters' checkbox. The 'Outgoing Messages' section has a fixed 'Maximum message length' of 255 bytes and similar dropdown menus for delimiters. The 'Connector' is set to 'Port 1: DB9' and 'Mode' is 'RS-232'. 'Baud' is 19200, 'Parity' is 'None', and 'Data' is '8 Bits'. 'Stop' is '1 Bits'. 'Save' and 'Cancel' buttons are at the bottom.

Figure 2-61 Serial Module configuration details

- Enter the maximum message length before the 460 Gateway stops receiving a particular message from the device.
- Enter a value 10 to 60000 milliseconds to enable the receive character timeout. If the 460 should never receive messages from the device (printer, sign, etc.), enter 0 to disable this timeout. However, if you want the 460 Gateway to poll a device periodically regardless of how much data is accumulated, a value (other than 0) here sends the data and then clears the buffer out after the amount of time you select. For example, if you enter a value of 1000, the serial device sends data to the 460 Gateway every 1 second. Even if it was in the middle of the transmission, all data from the buffer is sent to the 460 Gateway.
- Using delimiters is the best way to control your data. If the serial device can output delimiters, select the correct incoming start and/or end delimiter information for data going from the ASCII device to the 460 Gateway. If the serial device can process incoming delimiters, select the correct outgoing start and/or end delimiter information for data going from the 460 Gateway to the ASCII device. The bytes should NOT be the same for both start and end. If no delimiters are possible or desired, select **Unused** from the top of the drop-down menu(s).
If you do not want the start or end delimiters to be sent with the data, check the Discard all delimiter byte(s) box.
- Select the port that the device uses to connect to the 460 Gateway.
- Select the appropriate communications mode.
- Select the correct transmission settings from the menus.

➔ **Note:** Only one RS232, RS485, or CAN port setting can be active per unit. For example, a unit cannot have two ports set for RS232 or two set for RS485 (regardless of duplex settings). If the same mode is selected for two communication modules, a message similar to Figure 2-62 displays.

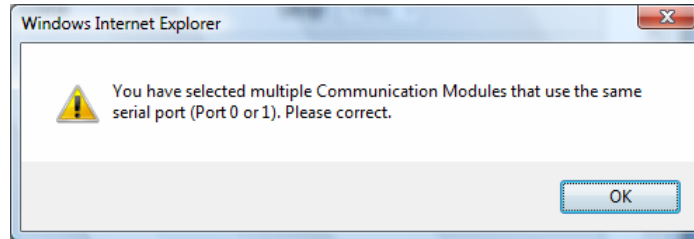


Figure 2-62 Serial port incompatibility error

5. Click on **Save**.
The selections stay visible on the **Communication Module Configuration** screen, although they are grayed out (until you select **Edit** again). See Figure 2-63.

Serial Module 1	Edit	✓	Incoming Messages: Maximum message length: 255 (1-255) Receive character timeout: 1000 milliseconds (10-60000, 0 to disable) Delimiters are shown as ASCII, decimal, and hexadecimal. Select the 1ST start delimiter: [DC4] 20 0x14 Select the 2ND start delimiter: Unused Select the 1ST end delimiter: [CR] 13 0x0D Select the 2ND end delimiter: [LF] 10 0x0A ☒ Discard all delimiters Outgoing Messages: Maximum message length is 255 bytes Select the 1ST start delimiter: Unused Select the 2ND start delimiter: Unused Select the 1ST end delimiter: Unused Select the 2ND end delimiter: Unused Connector: Port 1: DB9 Mode: RS-232 Baud: 19200 Parity: None Data: 8 Bits Stop: 1 Bits
Serial Module 2	Edit	✓	

Figure 2-63 Serial Module configuration details selected

↻ *For Your Information: Familiar users can make all desired communication module edits before completing the external device list for the master/client devices. The order of the configuration steps do not matter as long as the communication module is enabled.*

Default IP Address – 192.168.0.100

6. Click on the [Return to Main](#) button. The RTA 460 Gateway Main Page displays with a Client Module Configuration option. See Figure 2-64.

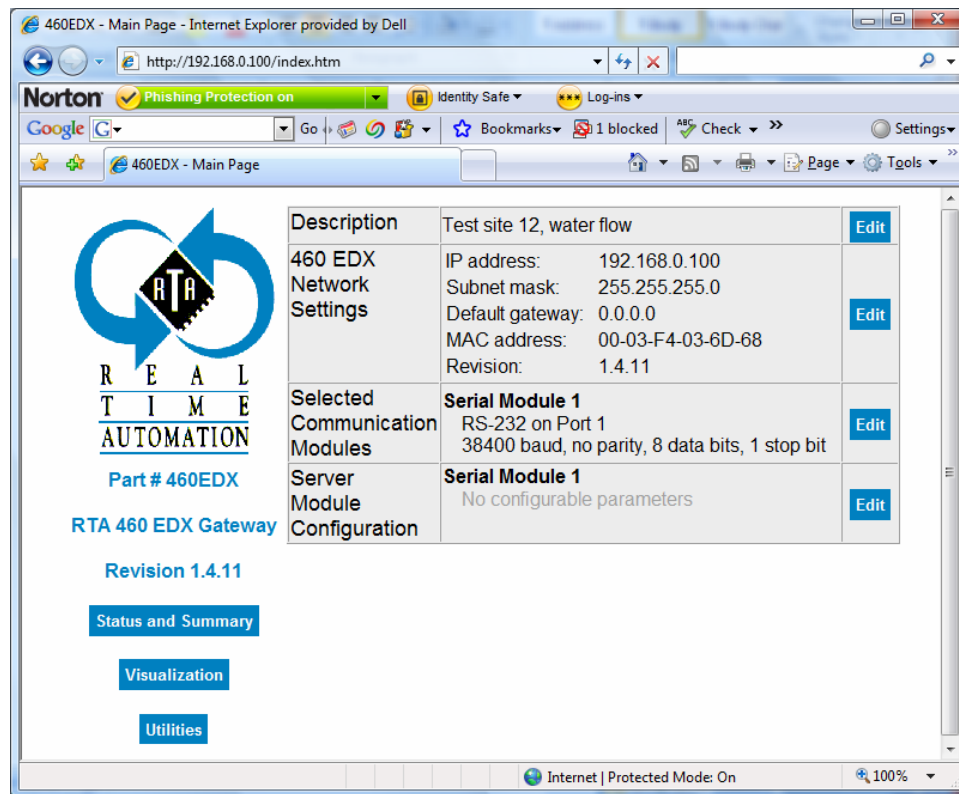


Figure 2-64 Serial Module Configuration

 *For Your Information: If you need to configure more than one 460 Gateway with the same or similar settings, it may be quicker to configure the first gateway using these directions and then save the configuration to a file to use for the other gateway units.*
*Note that for gateways that are configured from a file, you still need to set jumpers (if desired), edit the network settings, and restart the gateway to make the settings take effect. See **Configuring 460 Gateways from a file** on page 60 for more information.*

Editing 460 Gateway Network Settings

After the computer is connected to the 460 Gateway, use the following steps to configure the network settings. For illustration purposes, this manual refers to example screens from the 460EDX Gateway. Other 460 Gateway versions have similar screens. See Figure 2-65.

➔ **Note:** If you need to change the 460 Gateway's IP address after the initial setup, you can use either the following procedure or use the IPSetup tool on the CD shipped with the 460 Gateway. (Refer to *Changing IP or subnet addresses* on page 66.

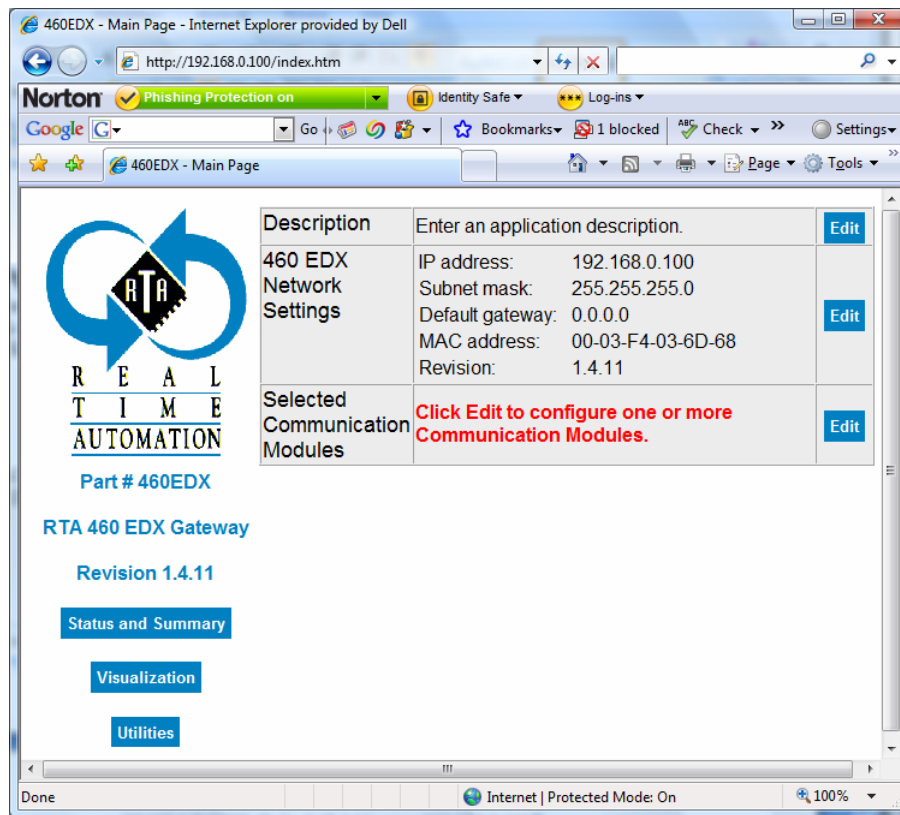


Figure 2-65 460 Gateway Main web page

1. Click on [Edit](#) next to the **460 Network Settings** section of the table. The Network Setup screen displays. See Figure 2-66.

Default IP Address – 192.168.0.100

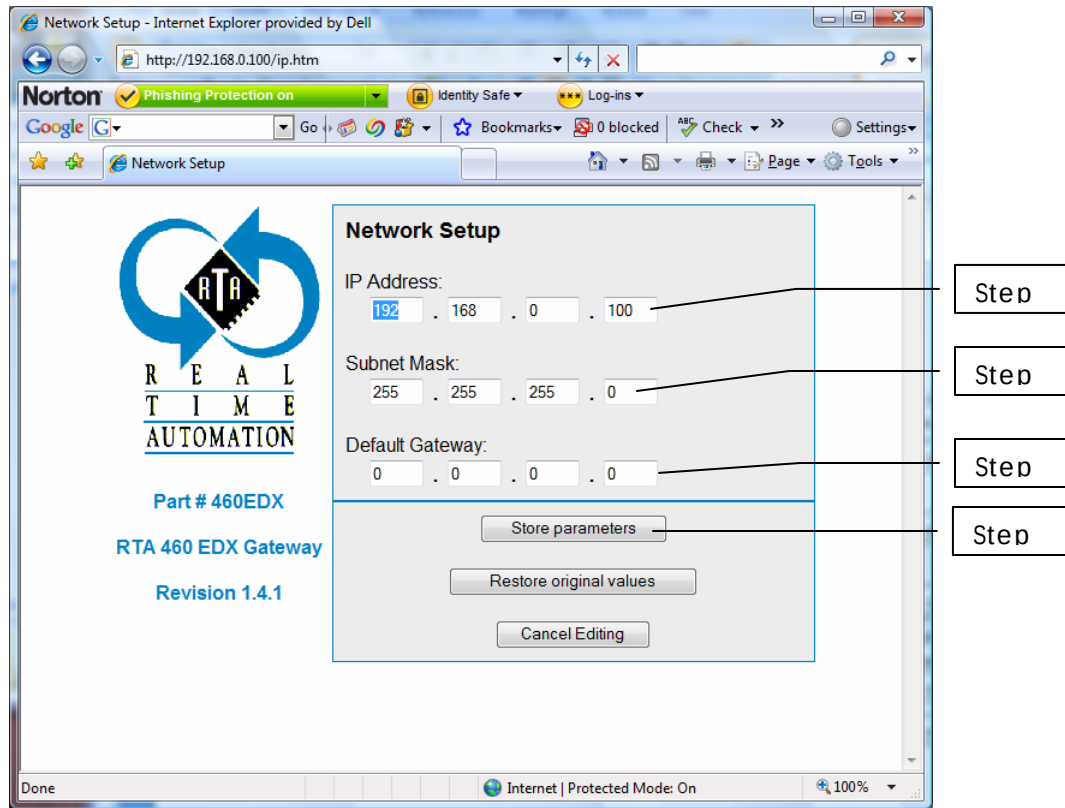


Figure 2-66 Network Setup screen

2. Enter the IP address that identifies the 460 Gateway to the network.
3. Enter the subnet mask that identifies which devices can communicate with the 460 Gateway.
4. Enter the default gateway to use if the device cannot be accessed directly.
5. When you are finished entering these values, click on Store Parameters. The 460 Gateway Main web page displays.

➡ **Note:** The Restore original values button causes the parameters to display that were entered when the page loaded.

6. When you have finished making any desired changes to the 460 Gateway's configuration, continue with the following section, *Making Settings Take Effect*.



For Your Information: If you need to configure more than one 460 Gateway with the same or similar settings, it may be quicker to configure the first gateway using these directions and then save the configuration to a file to use for the other gateway units.

*Note that for gateways that are configured from a file, you still need to set jumpers (if desired), edit the network settings, and restart the gateway to make the settings take effect. See **Configuring 460 Gateways from a file** on page 60 for more information.*

Making Settings Take Effect

Before any changes to the 460 Gateway's configuration or network settings take effect, you must reboot the unit. Do this before removing power from the 460 Gateway.

Use the following steps to reboot the 460 Gateway.

For illustration purposes, this manual refers to example screens from the 460EDX Gateway. Other 460 Gateway versions have similar screens. Figure 2-67 shows an example of the 460 Gateway's Main Page.

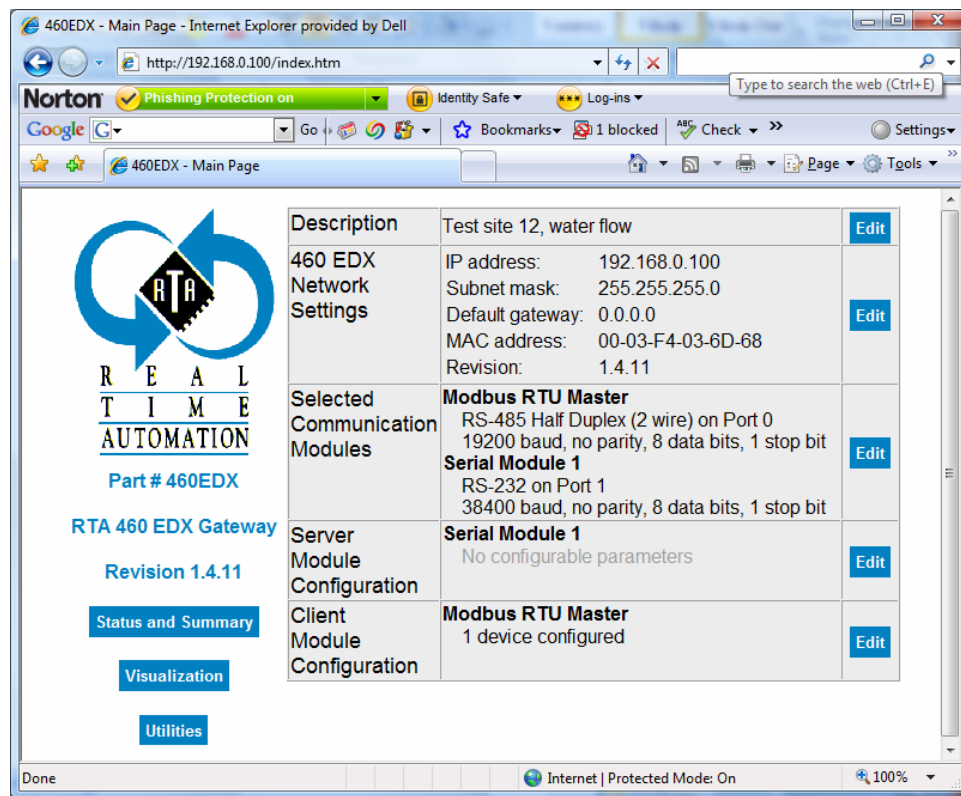


Figure 2-67 460 Gateway Main Page

1. From the 460 Gateway Main Page click on [Utilities](#) on the left side of the screen. The RTA 460 Utilities screen displays. See Figure 2-68.

RTA 460EDX - Utilities					
Back to Main Page					
IEC 61131-3 Project Information	Project: 460MTA.pro Title: Author: Revision: , on 2009-01-15				
Restart this 460EDX	Restart				
IEC 61131-3 Global Variables	Build Tag List				
Save and Restore 460EDX Configuration	Save Configuration to File Restore configuration from Browse... Restore from File 460EDX will restart after successful restore of the configuration.				
IEC 61131-3 External Libraries	These are the latest libraries to be used with this 460 EDX firmware revision. These are typically installed in the C:\Program Files\3S Software\RTA_460_EDX\Lib directory. <table border="0"> <tr> <td>RTA-460EDX.lib</td> <td>General library</td> </tr> <tr> <td>RTA-CIP.lib</td> <td>DeviceNet and Ethernet/IP CIP message processing</td> </tr> </table>	RTA-460EDX.lib	General library	RTA-CIP.lib	DeviceNet and Ethernet/IP CIP message processing
RTA-460EDX.lib	General library				
RTA-CIP.lib	DeviceNet and Ethernet/IP CIP message processing				

Figure 2-68 RTA 460 Utilities screen

2. Click on [Restar](#) toward the top of the screen.
A prompt displays asking you to verify that you want to restart the 460 Gateway.
3. Click OK.
Another prompt displays giving you the approximate time to complete the restart.
4. Click OK.
When the restart is complete, the 460 Gateway Main Page displays if your computer is on the same subnet (or attached) to the 460 Gateway.
If your computer is not on the same subnet, the screen does not change, as you are no longer receiving signals from the 460 Gateway.
5. If you are installing the 460 Gateway in a position that is not connected to the computer that did the software setup, disconnect the crossover cable from the 460 Gateway and from the computer.

Save the crossover cable with the null modem cable and the CD that was shipped with the 460 Gateway in case you need to make changes at a later time.

Connecting cables

Once the jumpers are set for the correct serial interfaces and the configuration and network settings are selected, you only need to connect the communications cables and attach the power cable, before verifying that data is transmitting correctly. Use the following steps to connect the appropriate cables.

1. Mount the 460 Gateway in the desired location.
2. Connect the appropriate cable to Port 0 on the 460 Gateway and the other end to the device that matches the protocol selected for Port 0. Do the same for Port 1. Use the correct cables.
3. If you are connecting the 460 Gateway to a network, plug one end of a non-crossover Ethernet cable (RJ45) to the front of the 460 Gateway. Plug the other end into the network/switch/hub.

➡ Note: In order to view the status of the data communications between the devices connected to the 460 Gateway via the Gateway's utilities, the 460 Gateway must be connected to a network (or computer).

4. Plug the power connector into the front of the 460 Gateway. Plug the other end of the power cord into a power supply.

You have completed installing the 460 Gateway.

Chapter 3 Troubleshooting

After the 460 Gateway is set up, it should transmit and receive data correctly. However, if it is not working as you expect, this chapter provides the following information to help you resolve the problem.

- Use the 460 Gateway's Summary and Status page to find clues to what may be causing the problem.
- Check Table 3-1 for possible solutions to common problems.

Checking device status

Use the following steps to view the 460 Gateway's Status and Summary page.

If the 460 Gateway is already connected to a personal computer and can access the Real Time Automation web site (factory set at <http://192.168.0.100>), skip to step 5.

1. Connect one end of an Ethernet crossover cable to the 460 Gateway and the other end to the RJ45 connector on your computer. A red Ethernet crossover cable was shipped with the 460 Gateway.
2. Insert the power connector to the 460 Gateway and then plug the power cord into a power source.
3. Your computer needs to be on the same subnet as this 460 Gateway unit. The unit's default IP address is 192.168.0.100. Therefore your computer's IP address must be set at 192.168.0.xxx, where xxx is any number that is not being used by any other device on your network.

If your computer is using a dynamic IP address (typical), you need to change it to a static 192.168.0.xxx address. Use the following steps to change your computer's IP address.

- a. Go into your Network Setup.
 - b. Select Internet Protocol (TCP/IP).
 - c. Click on Properties.
 - d. Click Use the following IP address.
 - e. Type in 192.168.0.10 (the last two digits are an example and can be any number as long as it is not being used). The Subnet mask should default to 255.255.255.0. Click OK.
4. Launch the web browser. In the address window, enter the IP address of the 460 Gateway.
Press Enter
The 460 Gateway Main Page displays. See Figure 3-1.

Default IP Address – 192.168.0.100

➡ **Note:** If the web page does not display, check the following settings:

The web page does not display when the computer is on a wireless network because of subnet selections. Use either the crossover cable or a hub/switch on the same subnet.

Verify that your web browser is not set for a proxy server. If you are using Internet Explorer, check Internet Options/Connections/LAN Settings. Make sure the check box is checked for Automatically detect settings and the check box is empty (not checked) next to the Use a proxy server for your LAN option.

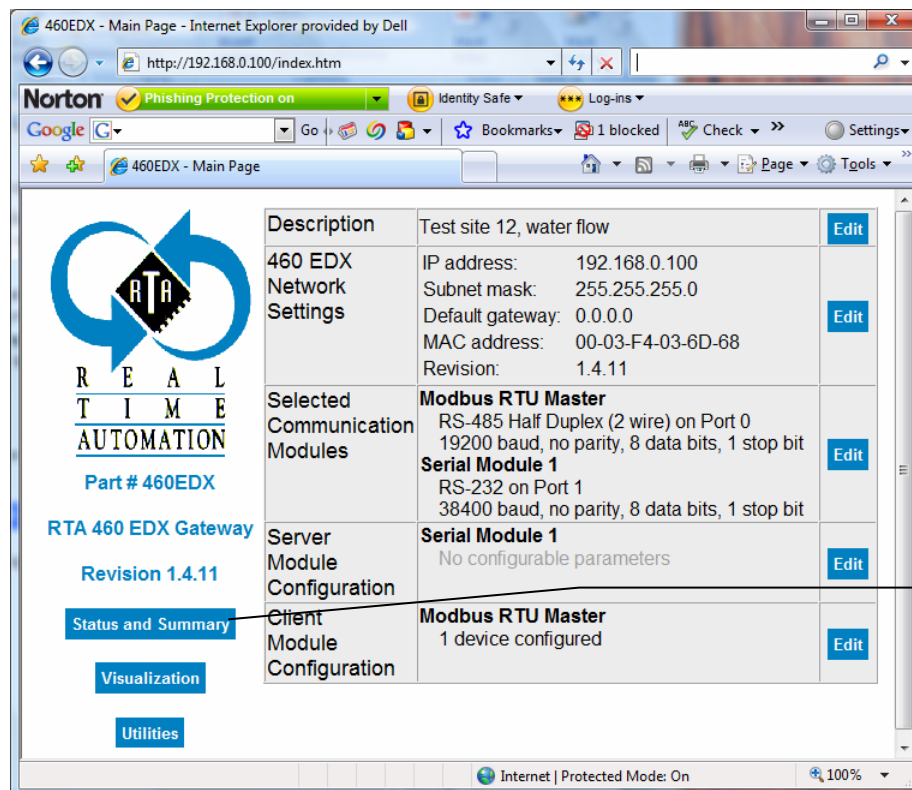


Figure 3-1 460 Gateway Main Page

5. Click on [Status and Summary](#)

The RTA 460 Device Summary and Status screen displays. See Figure 3-2.

Default IP Address – 192.168.0.100

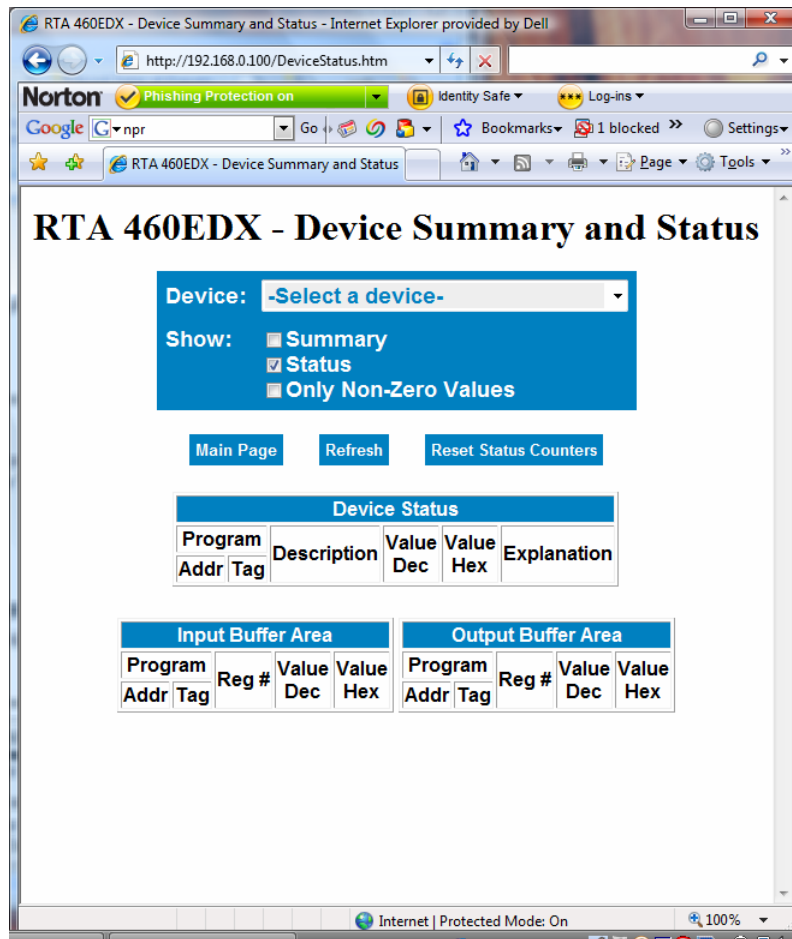


Figure 3-2 RTA 460 Device Summary and Status screen

6. Click **Refresh** or Press F5.
The values on this screen do not update automatically. Continue to click on **Refresh** or press F5 to see the most current status and buffer values.

Check this screen for error codes or messages. This screen displays data in buffers to help you troubleshoot any data transmission problems. Use Table 3-1 to interpret error conditions or messages.

➔ **Note:** To clear out the Value Dec, Value Hex, and Description fields without Restarting the 460 Gateway, click on **Reset Status Counters**.

7. Click on **Main Page** to return to the 460 Gateway Main Page.

Checking for solutions to common problems

Use Table 3-1 to check for possible solutions to common problems.

If you are unable to resolve the issue, contact Real Time Automation, Inc. (RTA) at 262.439.4999 or www.rtaautomation.com for more assistance.

Table 3-1 Common problems and possible solutions

Problem	Possible solutions
The personal computer cannot connect to the 460 Gateway.	Verify the 460 Gateway has power. To connect a personal computer to the 460 Gateway, you must use either an Ethernet crossover cable or a null modem cable. One of each of these cables was shipped with the 460 Gateway.
The web browser at IP address 192.168.0.100 (default) does not display.	The web page does not display when the computer is on a wireless network because of subnet selections. Use either the crossover cable or a regular cable with a hub/switch on the same subnet. If you can ping the 460 Gateway from the computer, then this is not the problem. Verify that your web browser is not set for a proxy server. If you are using Internet Explorer, check Internet Options/Connections/LAN Settings. Make sure the check box is empty (not checked) next to the Use a proxy server for your LAN option.
Data was transmitting, but now it seems to have stopped.	Check that all the cables and the power cord are secure. If data from one port is transmitting, but the other port is not, try changing cables.
Data is transmitting, but it does not seem to be correct.	This may be a data format (radix) problem. For example, if you are sending ASCII data and are displaying decimal data, all your data appears to be off by 48. A zero value in decimal is 0x30 in hexadecimal.
The data displaying on the Device Summary and Status screen is not the same as the data sent to the end-point device.	Change how you are viewing the data (ASCII, decimal, or hexadecimal) in your tag or register.

Problem	Possible solutions
The end of the data is being lost.	You may be sending more bytes of data than you have set in either the Maximum message length field or that have time to transmit because of the Receive Character Timeout field's setting. Or, if you are using an end delimiter, you may have a Maximum message length field setting or Receive Character Timeout setting that causes the data to transmit before the end delimiter is detected. New data transmits after the start delimiter is recognized. The data after the buffer length restriction and before the next start delimiter is lost.
N/A displays on the Device Summary and Status screen	The port and or function is disabled for one of the following reasons: • The Enabled? box for the type of protocol is not checked on the RTA 460 Communication Module Configuration screen. • The Receive Character Timeout field (in the Serial Modules) is set to 0 on the RTA 460 Communication Module Configuration screen.
The message Waiting for data to write displays on the Device Summary and Status page.	If the serial devices have sent additional data, check that the cable(s) is fastened securely.
I do not see any serial data in the buffer on the Device Summary and Status screen. The 460 Gateway is set up and installed.	Verify that the 460 Gateway was restarted after its initial configuration. Verify the 460 Gateway is connected to the appropriate devices. Press Refresh on the Device Summary and Status screen.
No data output comes from the 460 Gateway.	Output from the device may be disabled. Verify that the Buffer Transmit Length is not set to 0 in the applicable serial module configuration. Check that the start and stop delimiters are different (for serial modules).
The error has been fixed, but the error code still displays on the Device Summary and Status page.	Transmit data successfully then click Refresh on the Device Summary and Status screen.

Chapter 4 General Procedures

This chapter contains the following general information and procedures:

- Configuring 460 Gateways from a file
- Changing IP or subnet addresses using either IPSetup.exe or the Real Time Automation 460 Gateway web page

Configuring 460 Gateways from a file

If you need to configure many 460 Gateways with the same or a similar configuration, the quickest and easiest way to do so is to configure the first 460 Gateway using the steps in Chapter 1, then save that configuration to a file that you can use to configure the other 460 Gateways.

Use the steps in the following section, *Creating a configuration file*, to create the initial configuration file. After you have the desired configuration file, use the following steps in *Uploading a configuration file to additional gateways* on page 63 to copy the configuration file to additional 460 Gateways.

Creating a configuration file

If the 460 Gateway is already connected to a personal computer and can access the Real Time Automation web site (factory set at <http://192.168.0.100>), skip to step 5.

1. Connect one end of an Ethernet crossover cable to the 460 Gateway and the other end to the RJ45 connector on your computer. A red Ethernet crossover cable was shipped with the 460 Gateway.
2. Insert the power connector to the 460 Gateway and then plug the power cord into a power source.
3. Your computer needs to be on the same subnet as this 460 Gateway unit. The unit's default IP address is 192.168.0.100. Therefore your computer's IP address must be set at 192.168.0.xxx, where xxx is any number that is not being used by any other device on your network.

If your computer is using a dynamic IP address (typical), you need to change it to a static 192.168.0.xxx address. Use the following steps to change your computer's IP address.

- a. Go into your Network Setup.
- b. Select Internet Protocol (TCP/IP).

Default IP Address – 192.168.0.100

- c. Click on Properties.
 - d. Click Use the following IP address.
 - e. Type in 192.168.0.10 (the last two digits are an example and can be any number as long as it is not being used). The Subnet mask should default to 255.255.255.0. Click OK.
4. Launch the web browser. In the address window, enter <http://192.168.0.100>
Press Enter
The 460 Gateway Main Page displays. See Figure 4-4.

➔ **Note:** If the web page does not display, check the following settings:

The web page does not display when the computer is on a wireless network because of subnet selections. Use either the crossover cable or a hub/switch on the same subnet.

Verify that your web browser is not set for a proxy server. If you are using Internet Explorer, check Internet Options/Connections/LAN Settings. Make sure the check box is checked for Automatically detect settings and the check box is empty (not checked) next to the Use a proxy server for your LAN option.

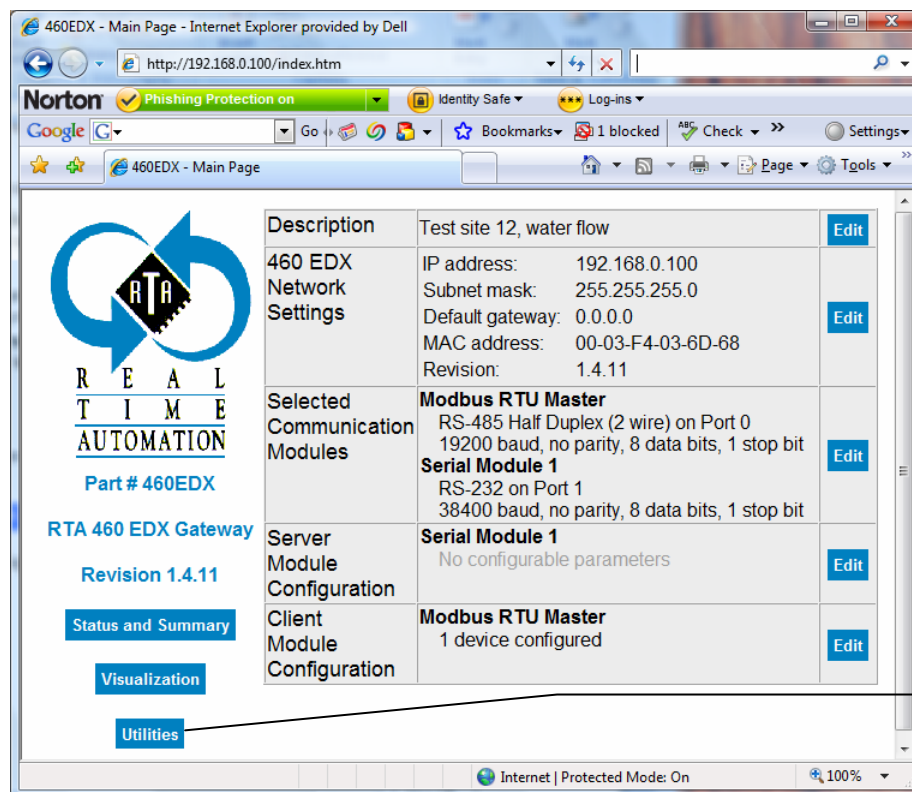


Figure 4-4 460 Gateway Main Page

5. Click on **Utilities**

The Utilities screen displays. See Figure 4-5.

RTA 460EDX - Utilities					
Back to Main Page					
IEC 61131-3 Project Information	Project: 460MTA.pro Title: Author: Revision: , on 2009-01-15				
Restart this 460EDX	Restart				
IEC 61131-3 Global Variables	Build Tag List				
Save and Restore 460EDX Configuration	Save Configuration to File Restore configuration from Browse... Restore from File 460EDX will restart after successful restore of the configuration.				
IEC 61131-3 External Libraries	These are the latest libraries to be used with this 460 EDX firmware revision. These are typically installed in the C:\Program Files\3S Software\RTA_460_EDX\Lib directory. <table><tr><td>RTA-460EDX.lib</td><td>General library</td></tr><tr><td>RTA-CIP.lib</td><td>DeviceNet and Ethernet/IP CIP message processing</td></tr></table>	RTA-460EDX.lib	General library	RTA-CIP.lib	DeviceNet and Ethernet/IP CIP message processing
RTA-460EDX.lib	General library				
RTA-CIP.lib	DeviceNet and Ethernet/IP CIP message processing				

Figure 4-5 RTA 460 Utilities screen

6. Click on **Save Configuration to File**

The File Download window displays. See Figure 4-6

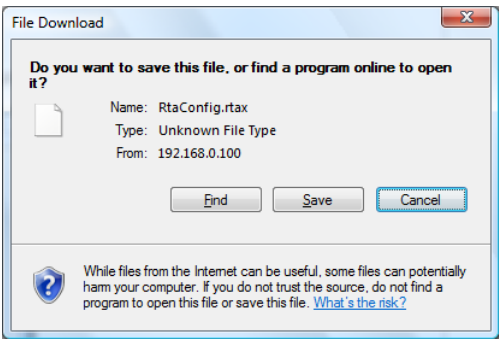


Figure 4-6 Configuration file verification

7. Click **Save**.
The Save As window displays. See Figure 4-7. Select a location to save the configuration file.
8. Click **Save**.
Another window displays confirming that the download is complete.

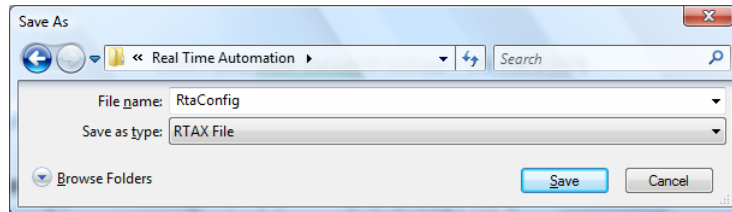


Figure 4-7 Prompt to save configuration file

9. If you are configuring 460 Gateways that are not attached to the computer you are using, then email or save the file to media that can be transferred to the appropriate computer.

➡ **Note:** When gateways are configured from a file, you still need to set jumpers (if desired), edit the network settings, and restart the gateway to make the settings take effect.

Uploading a configuration file to additional gateways

Use the following steps to configure a 460 Gateway from an existing configuration file. If you changed jumper settings on the 460 Gateway that supplied the configuration file, you need to change the settings on all gateways configured using the file. Refer to *Setting jumpers* on page 4.

If the 460 Gateway is already connected to a personal computer and can access the Real Time Automation web site (<http://192.168.0.100>), skip to step 5.

1. Connect one end of an Ethernet crossover cable to the 460 Gateway and the other end to the RJ45 connector on your computer. A red Ethernet crossover cable was shipped with the 460 Gateway.
2. Insert the power connector to the 460 Gateway and then plug the power cord into a power source.
3. Your computer needs to be on the same subnet as this 460 Gateway unit. The unit's default IP address is 192.168.0.100. Therefore your computer's IP address must be set at 192.168.0.xxx, where xxx is any number that is not being used by any other device on your network.
If your computer is using a dynamic IP address (typical), you need to change it to a static 192.168.0.xxx address. Use the following steps to change your computer's IP address.
 - a. Go into your Network Setup.
 - b. Select Internet Protocol (TCP/IP).

Default IP Address – 192.168.0.100

- c. Click on Properties.
 - d. Click Use the following IP address.
 - e. Type in 192.168.0.10 (the last two digits are an example and can be any number as long as it is not being used). The Subnet mask should default to 255.255.255.0. Click OK.
4. Launch the web browser. In the address window, enter <http://192.168.0.100>
Press Enter
The 460 Gateway Main Page displays. See Figure 4-8.

➔ **Note:** If the web page does not display, check the following settings:

The web page does not display when the computer is on a wireless network because of subnet selections. Use either the crossover cable or a hub/switch on the same subnet.

Verify that your web browser is not set for a proxy server. If you are using Internet Explorer, check Internet Options/Connections/LAN Settings. Make sure the check box is checked for Automatically detect settings and the check box is empty (not checked) next to the Use a proxy server for your LAN option.

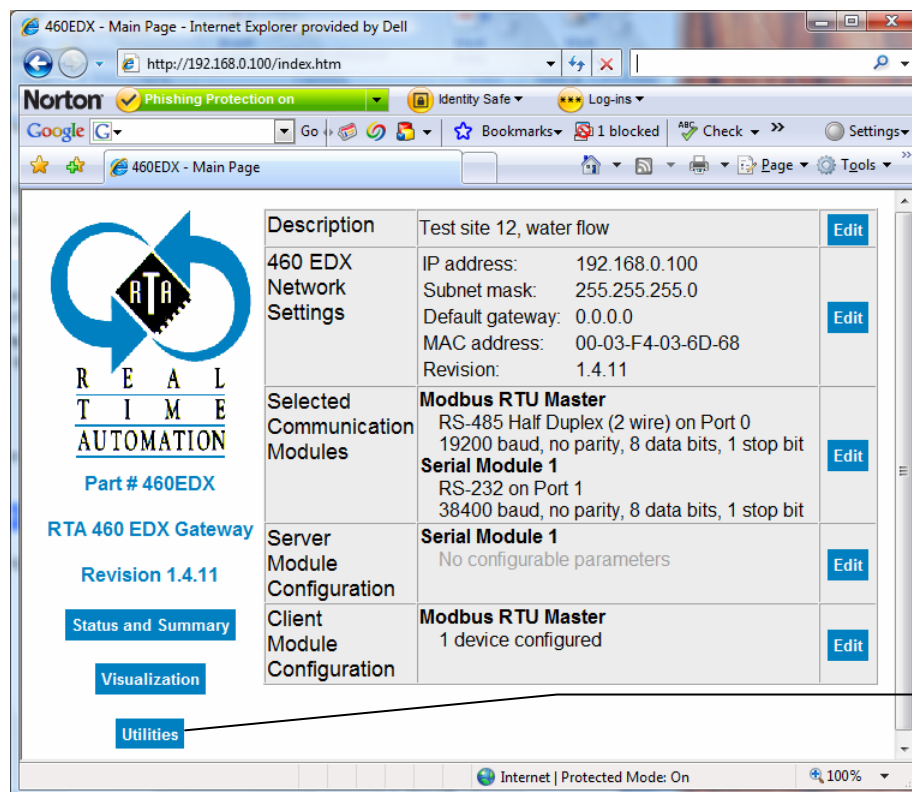


Figure 4-8 460 Gateway Main Page

Default IP Address – 192.168.0.100

5. Click on **Utilities**

The Utilities screen displays. See Figure 4-9.

RTA 460EDX - Utilities	
Back to Main Page	
IEC 61131-3 Project Information	Project: 460MTA.pro Title: Author: Revision: , on 2009-01-15
Restart this 460EDX	Restart
IEC 61131-3 Global Variables	Build Tag List
Save and Restore 460EDX Configuration	Save Configuration to File Restore configuration from Browse... Restore from File 460EDX will restart after successful restore of the configuration.
IEC 61131-3 External Libraries	These are the latest libraries to be used with this 460 EDX firmware revision. These are typically installed in the C:\Program Files\3S Software\RTA_460_EDX\Lib directory. RTA-460EDX.lib General library RTA-CIP.lib DeviceNet and Ethernet/IP CIP message processing

Figure 4-9 RTA 460 Utilities screen

6. In the Restore Configuration from area, browse to the location of the **RtaConfig.rtax** file. Click Open.
7. Click on **Restore from File**
When the configuration file has been saved to the new 460 Gateway and restarted, the 460 Gateway Main Page displays with the pre-set configuration settings.
8. To complete installing the 460 Gateway, continue with *Editing 460 Gateway Network Settings* on page 50 and *Making Settings Take Effect* on page 52.

Changing IP or subnet addresses

After the 460 Gateway is setup and installed, you can still change IP or subnet addresses using one of two methods. The easiest way involves using the IPSetup.exe tool on the *User Manuals and Tools* CD shipped with the 460 Gateway. However, if you no longer have the CD that came with the 460 Gateway, you can still change IP or subnet addresses using the Real Time Automation 460 Gateway web site.

The IPSetup.exe

If you have the *User Manuals and Tools* CD that was shipped with the 460 Gateway, use the following steps to change the IP or subnet address. You can run this tool from your desktop, as it does not install any files.

1. Connect one end of an Ethernet crossover cable to the 460 Gateway and the other end to the RJ45 connector on your computer. A red Ethernet crossover cable was shipped with the 460 Gateway. (Or, you can use a regular Ethernet cable connected to a hub or subnet with the 460 Gateway.)
2. Insert the power connector to the 460 Gateway, and then plug the power cord into a power source.
3. Insert the CD into the CD-ROM drive on your computer. Double-click on the Tools folder.
Three tools display.



For Your Information: If you no longer have the CD that shipped with the 460 Gateway, download the IPSetup.exe at <http://www.rtaautomation.com/support> from the Real Time Automation's website.

4. Double-click on IPSetup.
The Real Time Automation IPSetup screen displays. See Figure 4-10.

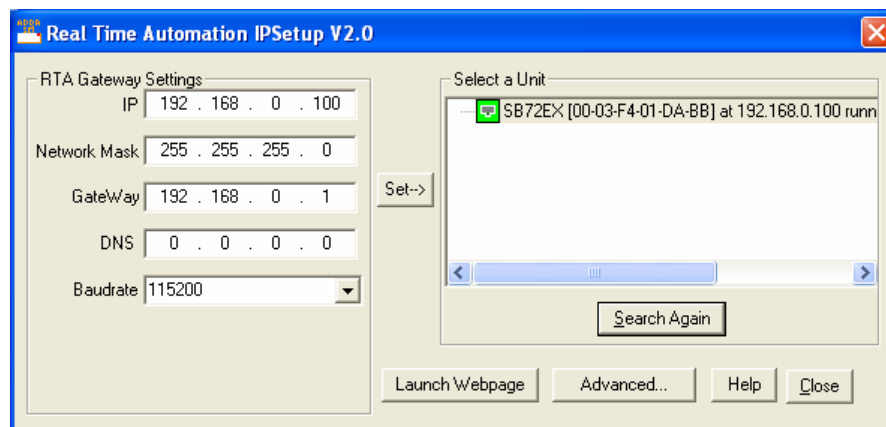


Figure 4-10 Real Time Automation IPSetup screen

5. Click on Search Again.
The 460 Gateway units on the network display. If the crossover cable is connected directly to your computer instead of to a hub, the 460 Gateway is the only one that displays.

➡ **Note:** If you don't see the 460 Gateway on the right, the unit is not accessible, and you need to look at connections to hub, router, switches, etc.

6. Change the IP, Network Mask, GateWay or DNS fields according to your network requirements. Leave Baud rate at the default value.
7. Highlight (click on) the unit to program on the upper right side of the screen, and click Set. After you have changed any other IP or subnet addresses (if necessary), click on Close.
8. Close the Tools folder and remove the *User Manual and Tools CD*.

The Real Time Automation 460 Gateway web site

If you do NOT have the *User Manuals and Tools CD* that was shipped with the 460 Gateway, use the following steps to change the IP or subnet address.

1. Connect one end of an Ethernet crossover cable to the 460 Gateway and the other end to the RJ45 connector on your computer or to a hub/switch on the same subnet. A red Ethernet crossover cable was shipped with the 460 Gateway.
2. Insert the power connector to the 460 Gateway, and then plug the power cord into a power source.
3. Your computer needs to be on the same subnet as the 460 Gateway. The unit's default IP address is 192.168.0.100. Therefore your computer's IP address must be set at 192.168.0.xxx, where xxx is any number that is not being used by any other device on your network.
If your computer is using a dynamic IP address (typical), you need to change it to a static 192.168.0.xxx address. Use the following steps to change your computer's IP address.
 - a. Go into your Network Setup.
 - b. Select Internet Protocol (TCP/IP).
 - c. Click on Properties.
 - d. Click Use the following IP address.
 - e. Type in 192.168.0.10 (the last two digits are an example and can be any number as long as it is not being used). The Subnet mask should default to 255.255.255.0. Click OK.

4. Launch the web browser. In the address window, enter <http://192.168.0.100>
Press Enter
The Real Time Automation 460 Gateway web page displays. See Figure 4-11.

➡ **Note:** If the web page does not display, check the following settings:

The web page does not display when the computer is on a wireless network because of subnet selections. Use either the crossover cable or a hub/switch on the same subnet.

Verify that your web browser is not set for a proxy server. If you are using Internet Explorer, check Internet Options/Connections/LAN Settings. Make sure the check box is checked for Automatically detect settings and the check box is empty (not checked) next to the Use a proxy server for your LAN option.

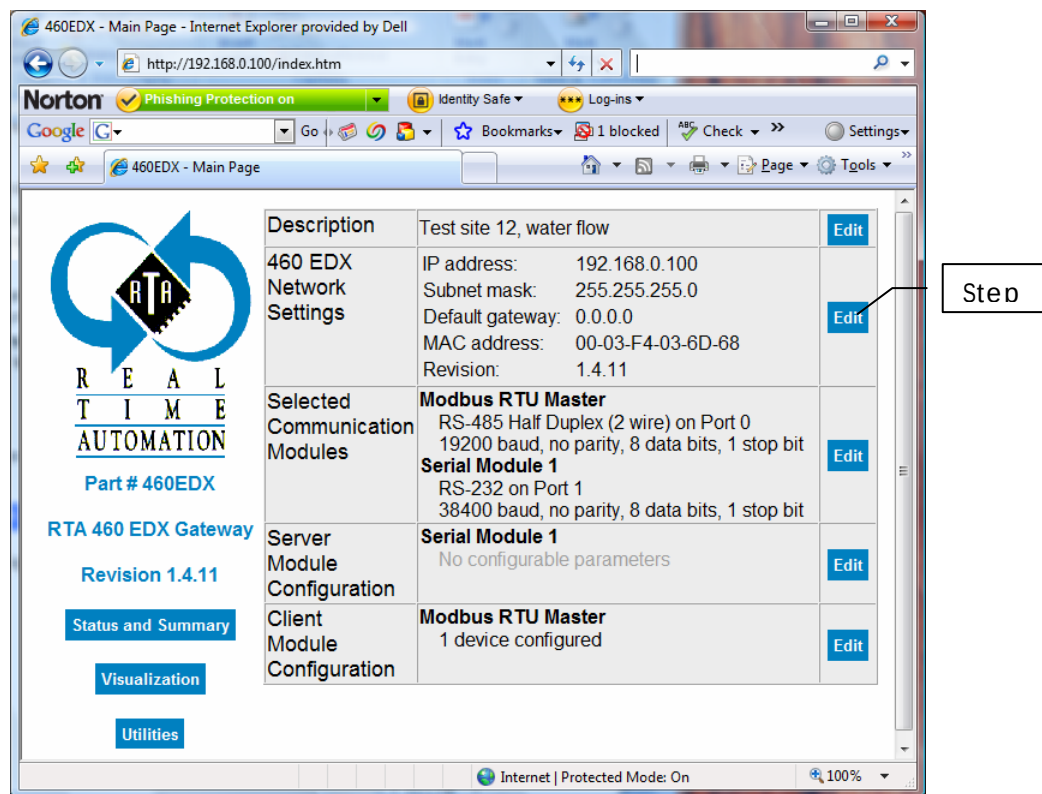


Figure 4-11 Real Time Automation 460 Gateway Main Page

5. Go to the Network Settings area of the screen. Click on [Edit](#)
The Network Setup screen displays. See Figure 4-12.

Default IP Address – 192.168.0.100

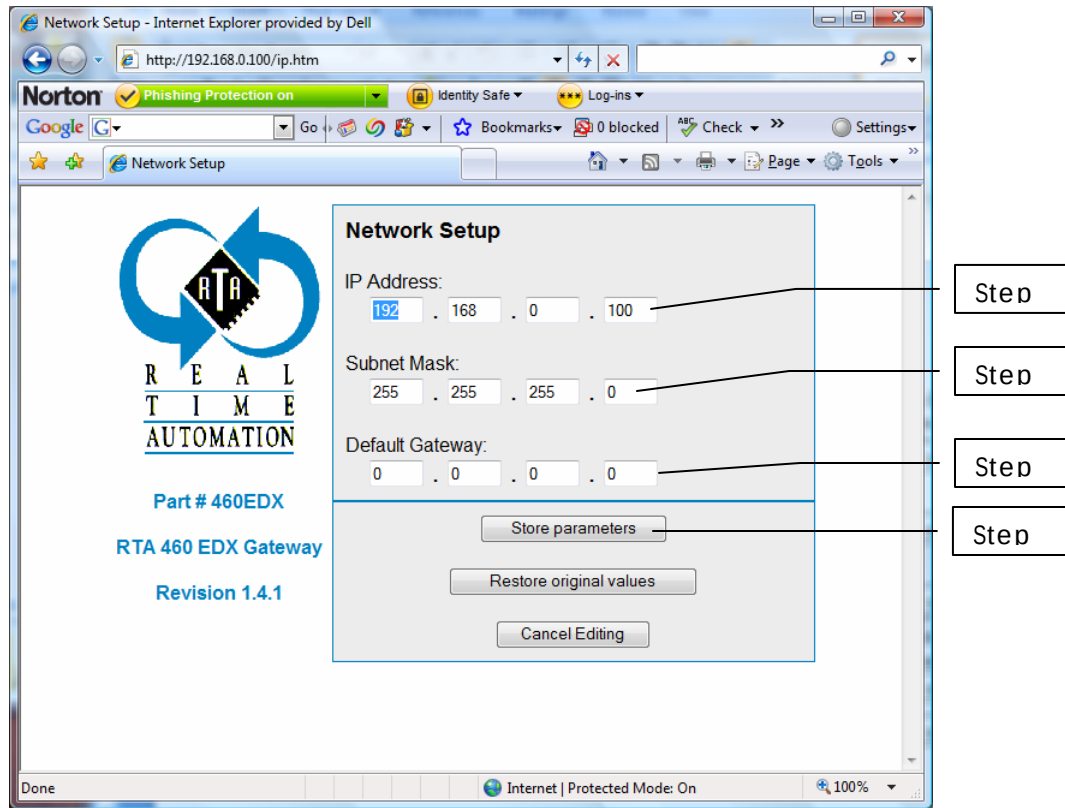


Figure 4-12 Network Setup screen

6. Enter the IP address that identifies the 460 Gateway to the network.
7. Enter the subnet mask that identifies which devices can communicate with the 460 Gateway.
8. Enter the default gateway to use if the device cannot be accessed directly.
9. When you are finished entering these values, click on Store Parameters.
The 460 Gateway Main web page displays.

➡ **Note:** The Restore original values button causes the parameters to display that were entered when the page loaded.

10. When you have finished making any desired changes to the 460 Gateway's configuration, continue with the following section, *Making Settings Take Effect*.

Chapter 5 Panel mount dimensions

Figure 5-1 shows the panel mount dimensions for the 460 Gateway.

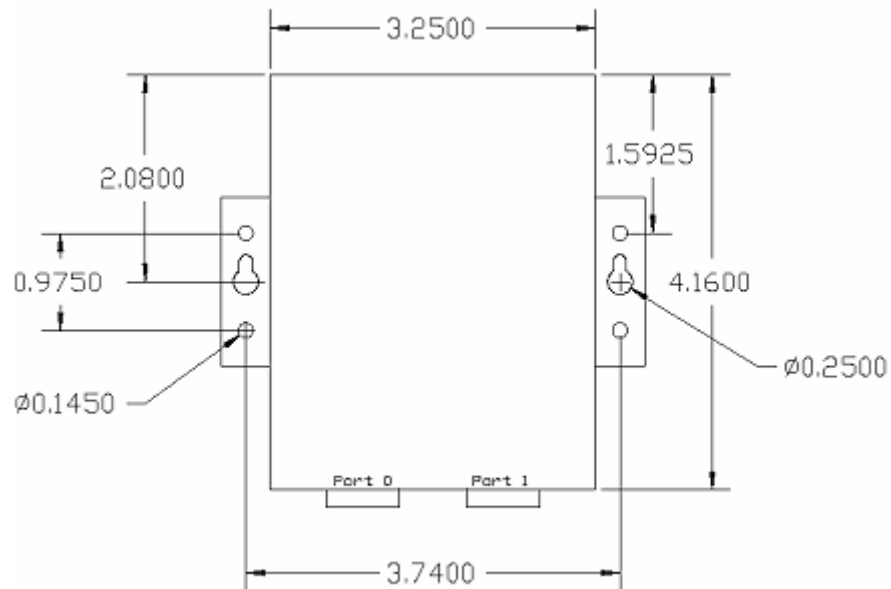


Figure 5-1 Panel mount dimensions

Default IP Address – 192.168.0.100

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